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The Effects of Inlet Turbulence and Rotor Stator Interactions on the Aerodynamics and Heat Transfer of a Large-Scale Rotating Turbine Model

II—Heat Transfer Data Tabulation 15% Axial Spacing

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SUMMARY

A combined experimental and analytical program was conducted to examine the effects of inlet turbulence on airfoil heat transfer. The experimental portion of the study was conducted in a large-scale (approximately 5X engine), ambient temperature, rotating turbine model configured in both single stage and stage-and-a-half arrangements. Heat transfer measurements were obtained using low-conductivity airfoils with miniature thermocouples welded to a thin, electrically heated surface skin. Heat transfer data were acquired for various combinations of low or high inlet turbulence intensity, flow coefficient, first-stator/rotor axial spacing, Reynolds number and relative circumferential position of the first and second stators. Aerodynamic measurements obtained as part of the program include distributions of the mean and fluctuating velocities at the turbine inlet and, for each airfoil row, midspan airfoil surface pressures and circumferential distributions of the downstream steady state pressures and fluctuating velocities. Analytical results include airfoil heat transfer predictions produced using existing two-dimensional boundary layer computation schemes and an examination of solutions of the unsteady boundary layer equations. The results of this program are reported in four separate volumes. All four have a common report title and the following volume subtitles:

REPORT TITLE: THE EFFECTS OF INLET TURBULENCE AND ROTOR/STATOR INTERACTIONS ON THE AERODYNAMICS AND HEAT TRANSFER OF A LARGE-SCALE ROTATING TURBINE MODEL

VOLUME TITLES:	VOLUME I:	R86-956480-1	FINAL REPORT
	VOLUME II:	R86-956480-2	HEAT TRANSFER DATA TABULATION 15% AXIAL SPACING
	VOLUME III:	R86-956480-3	HEAT TRANSFER DATA TABULATION 65% AXIAL SPACING
	VOLUME IV:	R86-956480-4	AERODYNAMIC DATA TABULATION

THE EFFECTS OF INLET TURBULENCE AND ROTOR/STATOR INTERACTIONS ON THE AERODYNAMICS AND HEAT TRANSFER OF A LARGE-SCALE ROTATING TURBINE MODEL
II - HEAT TRANSFER DATA TABULATION
15% AXIAL SPACING

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INTRODUCTION

The primary basis currently used by the gas turbine community for heat transfer analysis of turbine airfoils is experimental data obtained in linear cascades. These data have been very valuable in identifying the major heat transfer and fluid flow features of turbine airfoils. The question remains, however, as to how well cascade data translate to the rotating turbine stage. It is known from the work of Lokay and Trushin (Ref. 1) that average heat transfer coefficients on the rotor may be as much as 40 percent above the values measured on the same blades without rotation. Recent work by Dunn and Holt (Ref. 2) supports the conclusion of Ref. 1. It is widely recognized that at this time a need exists for a set of heat transfer data from a rotating system which is of sufficient detail to allow careful local comparisons between static cascade and rotor blade distributions. It is important that this data set include sufficient flow field documentation to support the computer analyses being developed today.

Other important questions include the impact of both random and periodic unsteadiness on both the rotor and stator airfoil heat transfer. The random unsteadiness arises from stage inlet turbulence and wake generated turbulence and the periodic unsteadiness arises from blade passing effects. A final question is the influence, if any, of the first

stator row and first stator inlet turbulence on the heat transfer of the second stator row after the flow has been passed through the rotor.

OBJECTIVES

The first program objective has been to obtain a detailed set of heat transfer coefficients along the midspan of a stator and a rotor in a rotating turbine stage (Fig. 1). The experimental program was designed such that the rotor data could be compared directly with data taken in a static cascade. The data are compared to a standard analysis of blade boundary layer heat transfer which is widely available today. In addition to providing this all-important comparison between rotating and stationary data, this experiment provides important insight to the more elaborate full three-dimensional programs being proposed for future research. A second program objective has been to obtain a detailed set of heat transfer coefficients along the midspan of a stator located in the wake of an

upstream turbine stage. Particular focus here was on the relative circumferential location of the first and second stators. Both program objectives were carried out at two levels of inlet turbulence. The low level was on the order of 1 percent while the high level of approximately 10 percent is more typical of combustor exit turbulence intensity. The final program objective is to improve the analytical capability to predict the experimental data.

DESCRIPTION OF EXPERIMENT

1. Turbine Facility

All experimental work for this program was conducted in the United Technologies Research Center Large Scale Rotating Rig (LSRR). This test facility was designed for conducting detailed experimental investigations of flow within turbine and compressor blading. Primary considerations were to provide a rig which would: (1) be of sufficient size to permit a high degree of resolution of three dimensional flows, (2) possess a high degree

of flexibility in regard to the configurations which can be tested, and (3) enable measurements to be made directly in the rotating frame of reference.

The facility is of the open circuit type with flow entering through a 12-ft diameter inlet. A 6-in. thick section of honeycomb is mounted at the inlet face to remove any cross flow effects. The inlet smoothly contracts the cross section diameter down to 5 ft. Flow is then passed through a series of three fine mesh screens to reduce the turbulence level. Immediately downstream of the screens is a telescoping section which slides axially and permits access to the test section. The test section consists of an axial series of constant diameter casings enclosing the turbine, compressor or, fan model assemblies. The casings are wholly or partially transparent, which facilitates flow visualization and laser-Doppler-velocimeter studies. The rotor shaft is cantilevered from two downstream bearings thus providing a clean flow path to the most upstream row of test airfoils. Axial length of the test section is 36 in. The rotor is driven or braked by a hydraulic pump and motor system which is capable of maintaining shaft speeds up to 890 rpm. Downstream of the test section

flow passes through an annular diffuser into a centrifugal fan and is subsequently exhausted from the rig. A vortex valve is mounted at the fan inlet face for flow rate control.

2. Airfoil Coordinates and Aerodynamics

The surface midspan coordinates of the first stage airfoils (first stator and rotor) are given in Tables 1 and 2 respectively.

The aerodynamic documentation of the turbine stage indicated that all parameters were very close to data obtained during prior testing with this turbine model, Ref. 3. As an example, the stator and rotor pressure distributions are shown in Figures 2a and 2b for the case with the small (15%) axial gap, at the design flow coefficient (C_x/U_m=0.78), and with the inlet turbulence generating grid installed. Agreement with a two dimensional potential flow calculation at this midspan location is excellent. The computed surface velocity distributions are used as the input to the suction and pressure surface boundary layer calculations.

3. Inlet Turbulence

As part of the present contract heat transfer distributions through the LSRR turbine blading were examined for both low and high levels of inlet turbulence. Throughout this report the low and high levels are referred to as "grid out" and "grid in" respectively. With the test facility configured in the minimum inlet turbulence arrangement (grid out) the inlet turbulence was approximately 0.5% at an axial location 22% of axial chord ahead of the first stator leading edge. Higher levels of inlet turbulence were produced by installing a biplane grid upstream of the first stator. The turbulence generator consisted of a nearly square array lattice of three concentric rings spaced uniformly in the radial direction with 80 radial bars evenly spaced circumferentially. Both the rings and radial bars were of nearly square 1/2 inch cross-section. The mesh spacing of the bars was 2.1 inches radially and 4.5 degrees (2.1 in. at mid-annulus) circumferentially. With the grid installed at the inlet turbulence intensity was typically 9.8%. The spanwise distributions at four different circumferential locations (relative to the stator leading

edge) are shown in Fig. 3. The data indicate that the turbulence is spatially uniform, nearly isotropic, and temporally (long time average) steady. This is representative of the level of turbulence measured at the exit of aircraft gas turbine combustors.

4. Heat Transfer Instrumentation

Heat transfer measurements were obtained in this study using low conductivity rigid foam castings of the test airfoils. A uniform heat flux was generated on the surface of the foam test airfoils using electrically heated metal foil strips attached to the model surface. Conduction and radiation effects produced small departures from complete uniformity. Local airfoil surface temperatures were measured using thermocouples welded to the back of the foil while the air temperature was measured using thermocouples in the air stream. The secondary junctions to copper wire were all made on Uniform Temperature Reference blocks (Kaye Instruments, UTR-48N) and the data were recorded using a Hewlett-Packard 300 channel

data aquisition unit (3497A/3498A), and an ice point reference (Kaye Instruments, K140-4). A 212 ring slip-ring unit (Wenden Co.) was used to bring heater power onto the rotor and to bring out the thermocouple data.

Instrumentation locations for the first stage stator and rotor are given in Figures 4a and 4b.

GUIDE TO DATA PRESENTATION

In Appendices I (15% axial spacing data) and II (65% axial spacing and 1 1/2 stage data) the data are presented in a series of "sets". Each "set" consists of the heat transfer data for a single airfoil (stator or rotor) for a particular test condition (some combination of flow coefficient, Reynolds number, axial spacing and inlet turbulence level). Each set consists of four plots: (1) the midspan Stanton number distribution, (2) a highly expanded plot of the Stanton number distribution in the leading edge region and (3) & (4) plots of the spanwise distributions of the Stanton number on the pressure and suction surfaces. Also given are tabulated val-

ues of the Stanton and Nusselt numbers as well as the measured wall temperature data. The form of the data is slightly different for the stators and rotor for reasons related to the rotor slip-ring wiring arrangement. Each stator data set is identified by a single six digit label e.g. R__P__ (RUN__POINT__). Slip ring limitations required that a complete set of rotor data be combined from two subsets e.g. R__P__-R__P__. A guide map to the data sets of Appendix I is given in Figure 5. The order of presentation of the data sets in this appendix proceeds sequentially following the order from top to bottom given in Figure 5.

NOMENCLATURE

SYMBOL	QUANTITY	UNITS	
		ENGLISH	SI
BX	AXIAL CHORD	IN	CM
CX	AXIAL VELOCITY COMPONENT	FT/SEC	M/SEC
K	AIR THERMAL CONDUCTIVITY	BTU/HR-FT-°F	JOULE/M-SEC-°C
Q-NOM	NOMINAL SURFACE HEAT FLUX	BTU/FT^2-SEC	$KWATT/M^3$
RHO-EXIT	DENSITY AT AIRFOIL TRAILING EDGE	LBM/FT^3	$KILOGRAM/M^3$
S	SURFACE DISTANCE	IN	CM
TT	TOTAL TEMPERATURE AT AIRFOIL LEADING EDGE	°F	°C
Um	AIRFOIL VELOCITY AT MIDSPAN	FT/SEC	M/SEC
U-EXIT	AIR VELOCITY RELATIVE TO AIRFOIL AT TRAILING EDGE	FT/SEC	M/SEC
U'	VELOCITY FLUCTUATION	FT/SEC	M/SEC
X	AXIAL DISTANCE	IN	CM
Y	CIRCUMFERENTIAL DISTANCE	IN	CM

REFERENCES

1. Lokay, V. I., and Trushin, V. A.: Heat Transfer from the Gas and Flow-Passage Elements of a Rotating Gas Turbine. Heat Transfer - Soviet Research, Vol. 2., No. 4, July ,1970.

2. Dunn, M. G., and Holt, J. L.: The Turbine Stage Heat Flux Measurements. Paper No. 82-1289, AIAA/ASME 18th Joint Propulsion Conference, 21-23, June, 1982, Cleveland, Ohio.

3. Dring,R . P., Josln, H. D., Hardin, L. W. and Wagner, J. H.: Turbine Rotor-Stator Interaction. ASME J. Eng. for Power, Vol. 104, pp 729-742, October, 1982.

TABLE 1

AIRFOIL: FIRST STATOR (MIDSPAN)
PITCH (ins.): 7.71118

	LEADING EDGE	TRAILING EDGE
RADIUS (ins.)	0.44484	0.10987
METAL ANGLE (degr.)	90.00000	21.42000
WEDGE ANGLE (degr.)	31.80000	6.84000

	X (ins.)	Y_L (ins.)	Y_U (ins.)
1	0.00000	6.80766	6.80766
2	0.05932	6.44830	7.15365
3	0.11864	6.43405	7.17319
4	0.17796	6.41912	7.19210
5	0.23728	6.40354	7.21034
6	0.29660	6.38729	7.22791
7	0.35592	6.37035	7.24476
8	0.41524	6.35273	7.26089
9	0.47456	6.33441	7.27624
10	0.53388	6.31540	7.29080
11	0.59320	6.29568	7.30453
12	0.74150	6.24325	7.33502
13	0.88980	6.18623	7.35957
14	1.03810	6.12447	7.37758
15	1.18640	6.05781	7.38835
16	1.33470	5.98603	7.39114
17	1.48300	5.90896	7.38513
18	1.63130	5.82633	7.36940
19	1.77960	5.73787	7.34300
20	1.92790	5.64326	7.30490
21	2.07620	5.54212	7.25403
22	2.22450	5.43404	7.18927
23	2.37280	5.31852	7.10949
24	2.52110	5.19498	7.01363
25	2.66940	5.06273	6.90066
26	2.81770	4.92096	6.76967
27	2.96600	4.76873	6.61989
28	3.11430	4.60490	6.45078
29	3.26260	4.42825	6.26202
30	3.41090	4.23771	6.05354
31	3.55920	4.03254	5.82550
32	3.70750	3.81279	5.57826
33	3.85580	3.57948	5.31230
34	4.00410	3.33397	5.02816
35	4.15240	3.07798	4.72650
36	4.30070	2.81269	4.40803
37	4.44900	2.53937	4.07350
38	4.59730	2.25873	3.72369
39	4.74560	1.97172	3.35942
40	4.89390	1.67884	2.98147
41	5.04220	1.38062	2.59066
42	5.19050	1.07737	2.18773
43	5.33880	0.76951	1.77352
44	5.39812	0.64517	1.60482
45	5.45744	0.52020	1.43448
46	5.51676	0.39451	1.26252
47	5.57608	0.26816	1.08901
48	5.63540	0.14117	0.91397
49	5.69472	0.01364	0.73745
50	5.75404	-0.11456	0.55950
51	5.81336	-0.24329	0.38014
52	5.87268	-0.37263	0.19943
53	5.93200	0.00000	0.00000

TABLE 2

AIRFOIL: FIRST ROTOR (MIDSPAN)
PITCH (ins.): 6.05879

	LEADING EDGE	TRAILING EDGE
RADIUS (ins.)	0.34872	0.19000
METAL ANGLE (degr.)	42.18646	25.97093
WEDGE ANGLE (degr.)	31.24000	5.31000

	X (ins.)	Y_L (ins.)	Y_U (ins.)
1	0.00000	3.41970	3.41970
2	0.06341	3.21919	3.62774
3	0.12682	3.15069	3.74347
4	0.19023	3.10908	3.84906
5	0.25364	3.08419	3.94593
6	0.31705	3.07242	4.03518
7	0.38046	3.07243	4.11769
8	0.44387	3.08422	4.19414
9	0.50728	3.10912	4.26511
10	0.57069	3.14694	4.33106
11	0.63410	3.18401	4.39238
12	0.79262	3.26583	4.52752
13	0.95115	3.33349	4.63984
14	1.10967	3.38822	4.73220
15	1.26820	3.43094	4.80674
16	1.42672	3.46228	4.86506
17	1.58525	3.48271	4.90837
18	1.74377	3.49248	4.93760
19	1.90230	3.49176	4.95347
20	2.06082	3.48053	4.95652
21	2.21935	3.45868	4.94712
22	2.37787	3.42596	4.92555
23	2.53640	3.38201	4.89193
24	2.69492	3.32633	4.84632
25	2.85345	3.25830	4.78863
26	3.01197	3.17735	4.71868
27	3.17050	3.08283	4.63616
28	3.32902	2.97433	4.54063
29	3.48755	2.85162	4.43151
30	3.64607	2.71488	4.30799
31	3.80460	2.56463	4.16905
32	3.96312	2.40136	4.01334
33	4.12165	2.22577	3.83912
34	4.28017	2.03852	3.64406
35	4.43870	1.84022	3.42595
36	4.59722	1.63139	3.18387
37	4.75575	1.41252	2.91661
38	4.91427	1.18402	2.63221
39	5.07280	0.94623	2.32774
40	5.23132	0.69955	2.00832
41	5.38985	0.44403	1.67680
42	5.54837	0.18008	1.33571
43	5.70690	-0.09214	0.98699
44	5.77031	-0.20337	0.84573
45	5.83372	-0.31578	0.70359
46	5.89713	-0.42949	0.56065
47	5.96054	-0.54448	0.41698
48	6.02395	-0.63800	0.27261
49	6.08736	-0.67575	0.12765
50	6.15077	-0.68673	-0.01791
51	6.21418	-0.67591	-0.16397
52	6.27759	-0.63841	-0.31052
53	6.34100	-0.49672	-0.49672

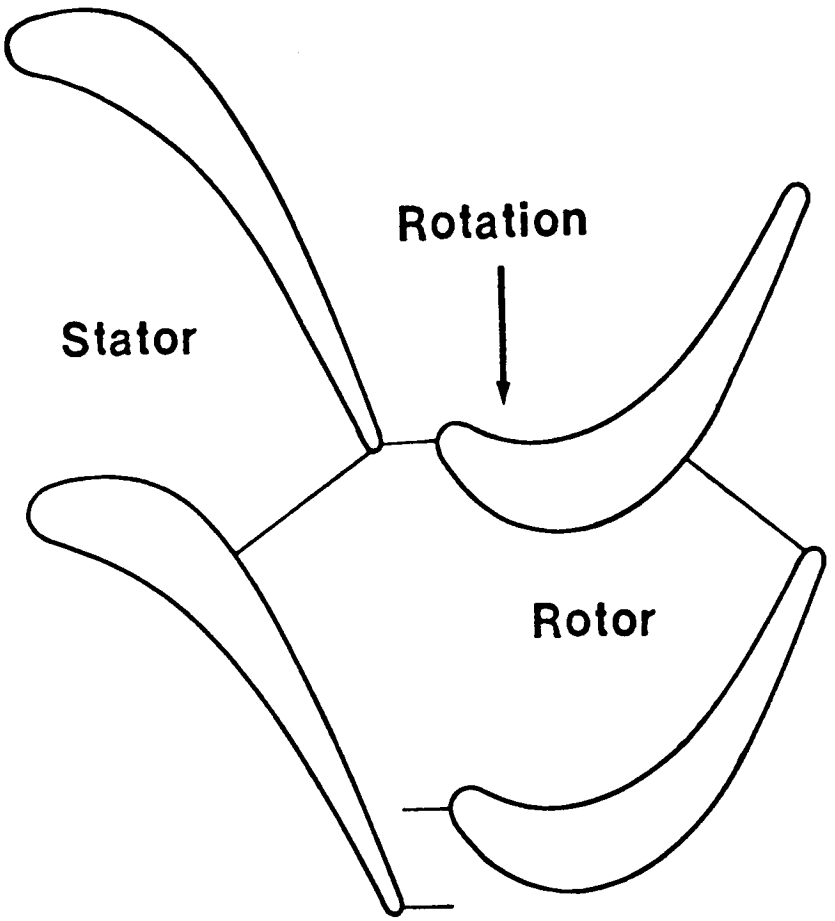


FIG. 1

FIRST STATOR
PRESSURE DISTRIBUTION

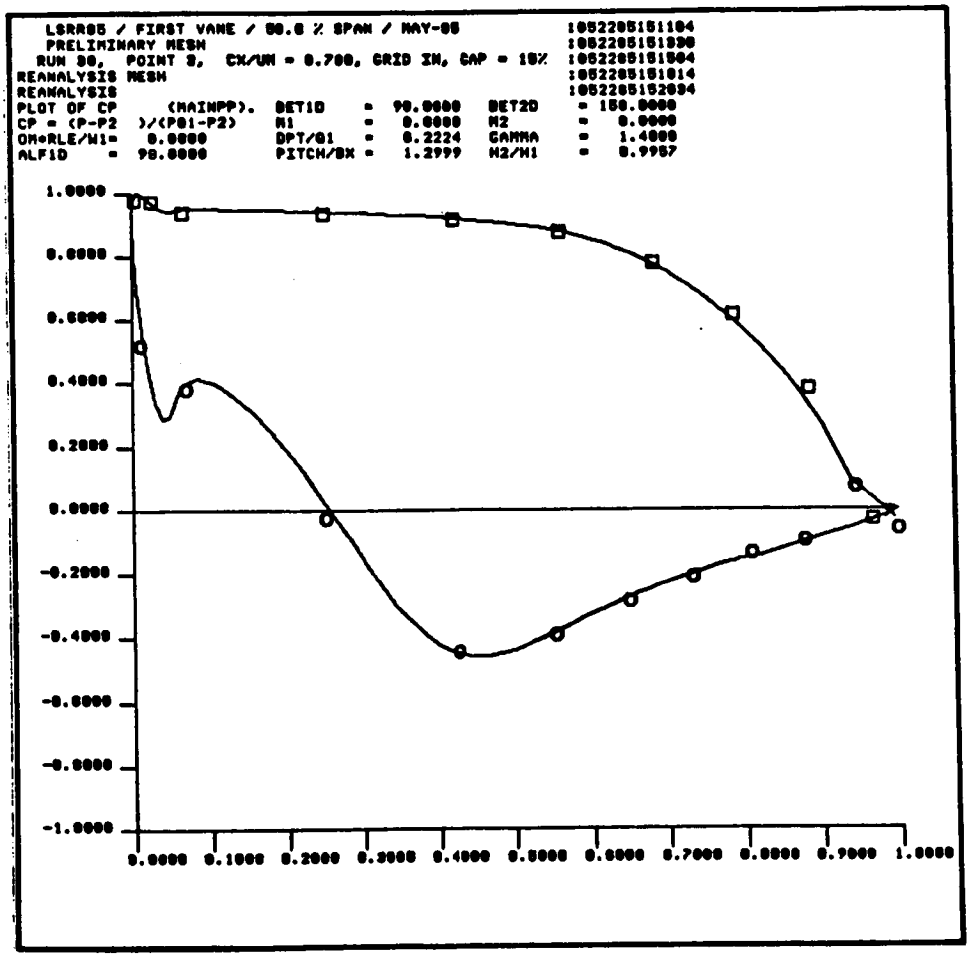


Figure 2a

ROTOR PRESSURE DISTRIBUTION

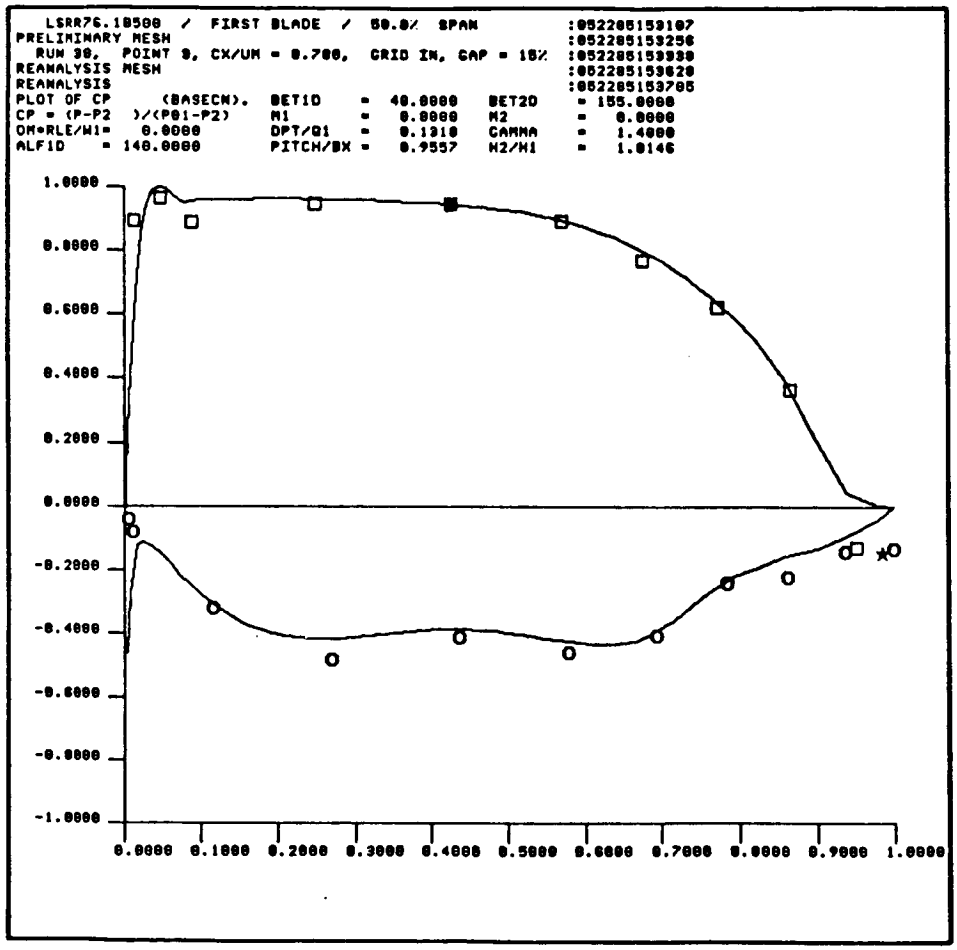


Figure 2b

STREAMWISE TURBULENCE (RMS)

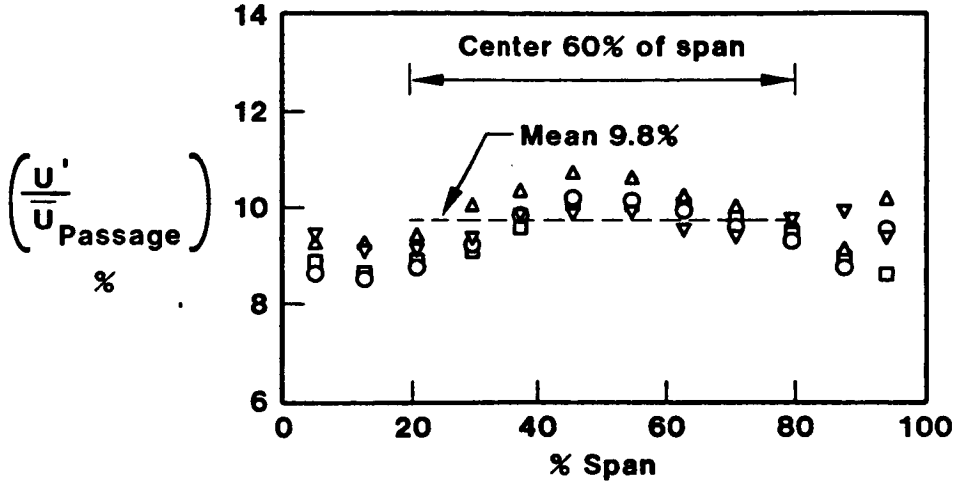
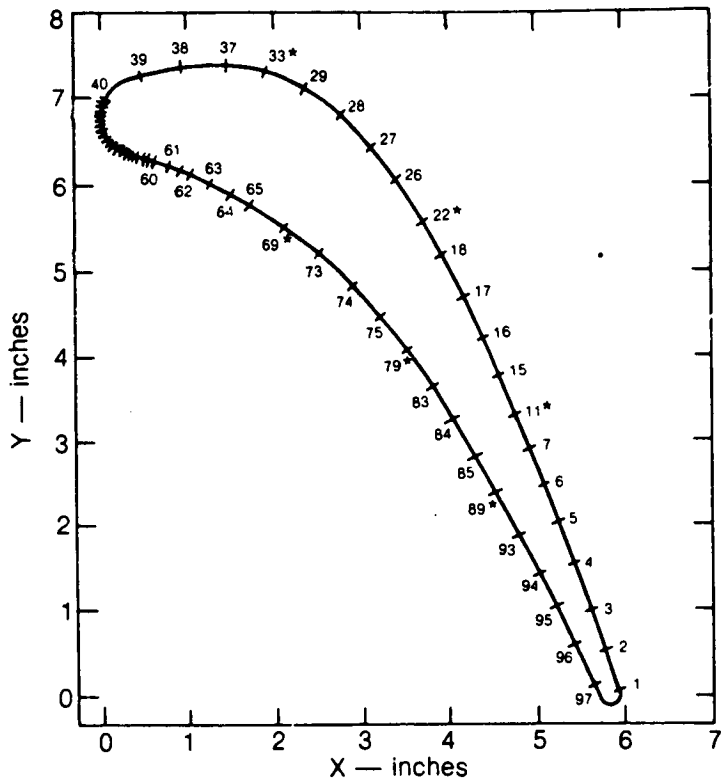


Figure 3

B_x = 5.932 in. TOTAL ARC LENGTH = 20.334 in.



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NOTE — ORIGIN OF ARC LENGTH (S) IS THE AXIAL TRAILING EDGE (MAXIMUM X), S INCREASES MOVING COUNTERCLOCKWISE

SUCTION SURFACE AIRFOIL TC's 1-60
PRESSURE SURFACE AIRFOIL TC's 40-97

T.C.#	X/B_x	S/B_x
1	0.995	0.012
2	0.968	0.096
3	0.941	0.181
4	0.915	0.265
5	0.887	0.349
6	0.858	0.434
7	0.829	0.518
11*	0.799	0.602
15	0.767	0.686
16	0.735	0.771
17	0.700	0.855
18	0.663	0.939
22*	0.620	1.024
26	0.575	1.108
27	0.524	1.192
28	0.464	1.277
29	0.396	1.361
33*	0.324	1.445
37	0.169	1.529
38	0.155	1.614

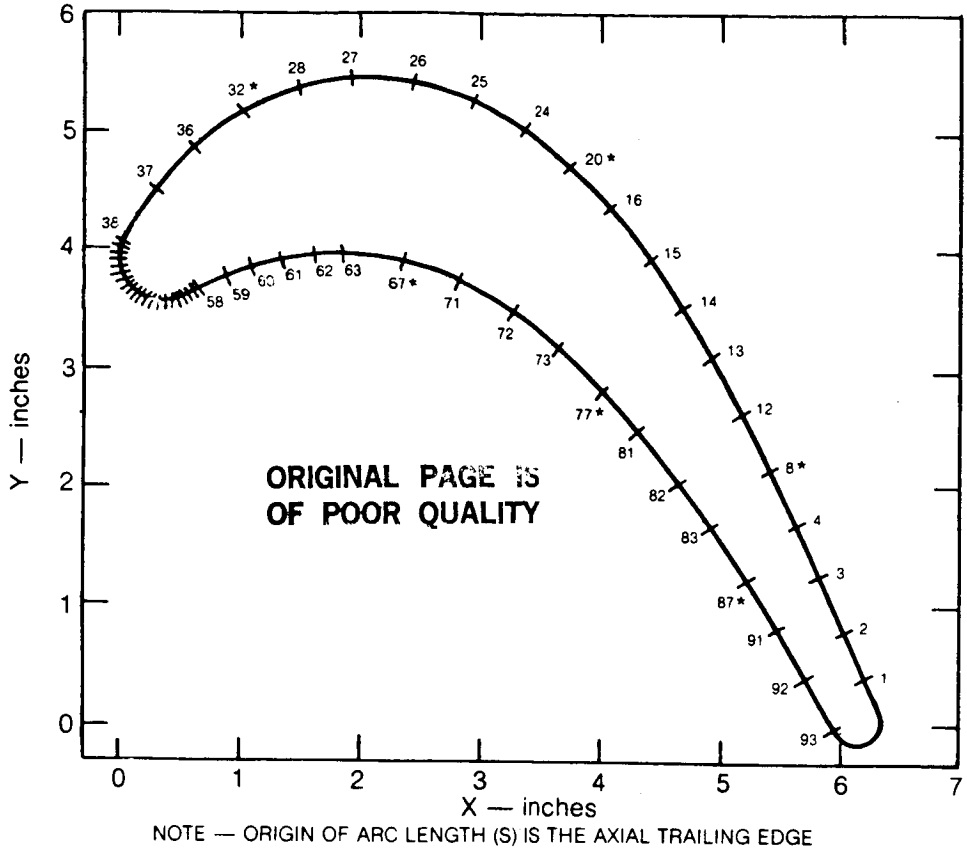
T.C.#	X/B_x	S/B_x
39	0.073	1.698
40	0.007	1.782
41	0.004	1.791
42	0.001	1.799
43	0.000	1.808
44	0.000	1.816
45	0.001	1.824
46	0.002	1.833
47	0.005	1.841
48	0.008	1.850
49	0.013	1.858
50	0.018	1.867
51	0.023	1.875
52	0.030	1.883
53	0.037	1.892
54	0.044	1.900
55	0.052	1.909
56	0.060	1.917
57	0.068	1.926
58	0.076	1.934

T.C.#	X/B_x	S/B_x
59	0.084	1.942
60	0.092	1.951
61	0.130	1.993
62	0.172	2.035
63	0.209	2.077
64	0.246	2.119
65	0.285	2.162
69*	0.356	2.246
73	0.421	2.330
74	0.484	2.414
75	0.538	2.499
79*	0.590	2.583
83	0.637	2.667
84	0.679	2.752
85	0.723	2.836
89*	0.764	2.920
93	0.802	3.004
94	0.840	3.089
95	0.878	3.173
96	0.914	3.257
97	0.949	3.342

* AT THESE AXIAL STATIONS T.C.s LOCATED AT 50% SPAN AND ±8.3, 16.6 AND 25% AWAY FROM MIDSPAN

Figure 4a Instrumentation Diagram for the First Stage Stator

$B_x = 6.341$ in. TOTAL ARC LENGTH = 18.753 in.



NOTE — ORIGIN OF ARC LENGTH (S) IS THE AXIAL TRAILING EDGE (MAXIMUM X), S INCREASES MOVING COUNTERCLOCKWISE

SUCTION SURFACE AIRFOIL TC's 1-58
PRESSURE SURFACE AIRFOIL TC's 38-93

T.C.#	X/B_x	S/B_x
1	0.975	0.069
2	0.945	0.148
3	0.912	0.227
4	0.878	0.306
8*	0.845	0.385
12	0.811	0.463
13	0.773	0.542
14	0.735	0.621
15	0.692	0.700
16	0.643	0.779
20*	0.588	0.858
24	0.525	0.936
25	0.456	1.015
26	0.382	1.094
27	0.303	1.173
28	0.226	1.252
32*	0.155	1.331
36	0.095	1.410
37	0.044	1.488
38	0.003	1.567

T.C.#	X/B_x	S/B_x
39	0.001	1.575
40	0.000	1.583
41	0.000	1.591
42	0.002	1.599
43	0.004	1.607
44	0.007	1.615
45	0.012	1.622
46	0.017	1.630
47	0.023	1.638
48	0.030	1.646
49	0.037	1.654
50	0.044	1.662
51	0.052	1.670
52	0.061	1.678
53	0.068	1.686
54	0.076	1.693
55	0.083	1.701
56	0.090	1.709
57	0.096	1.717
58	0.103	1.725

T.C.#	X/B_x	S/B_x
59	0.139	1.764
60	0.172	1.804
61	0.211	1.843
62	0.251	1.883
63	0.290	1.922
67*	0.371	2.000
71	0.445	2.080
72	0.513	2.159
73	0.574	2.237
77*	0.629	2.316
81	0.680	2.395
82	0.730	2.474
83	0.774	2.553
87*	0.820	2.632
91	0.858	2.711
92	0.899	2.789
93	0.940	2.868

* AT THESE AXIAL STATIONS T.C.s LOCATED AT 50% SPAN AND ±8.3, 16.6 AND 25% AWAY FROM MIDSPAN

Figure 4b Instrumentation Diagram for the First Stage Rotor

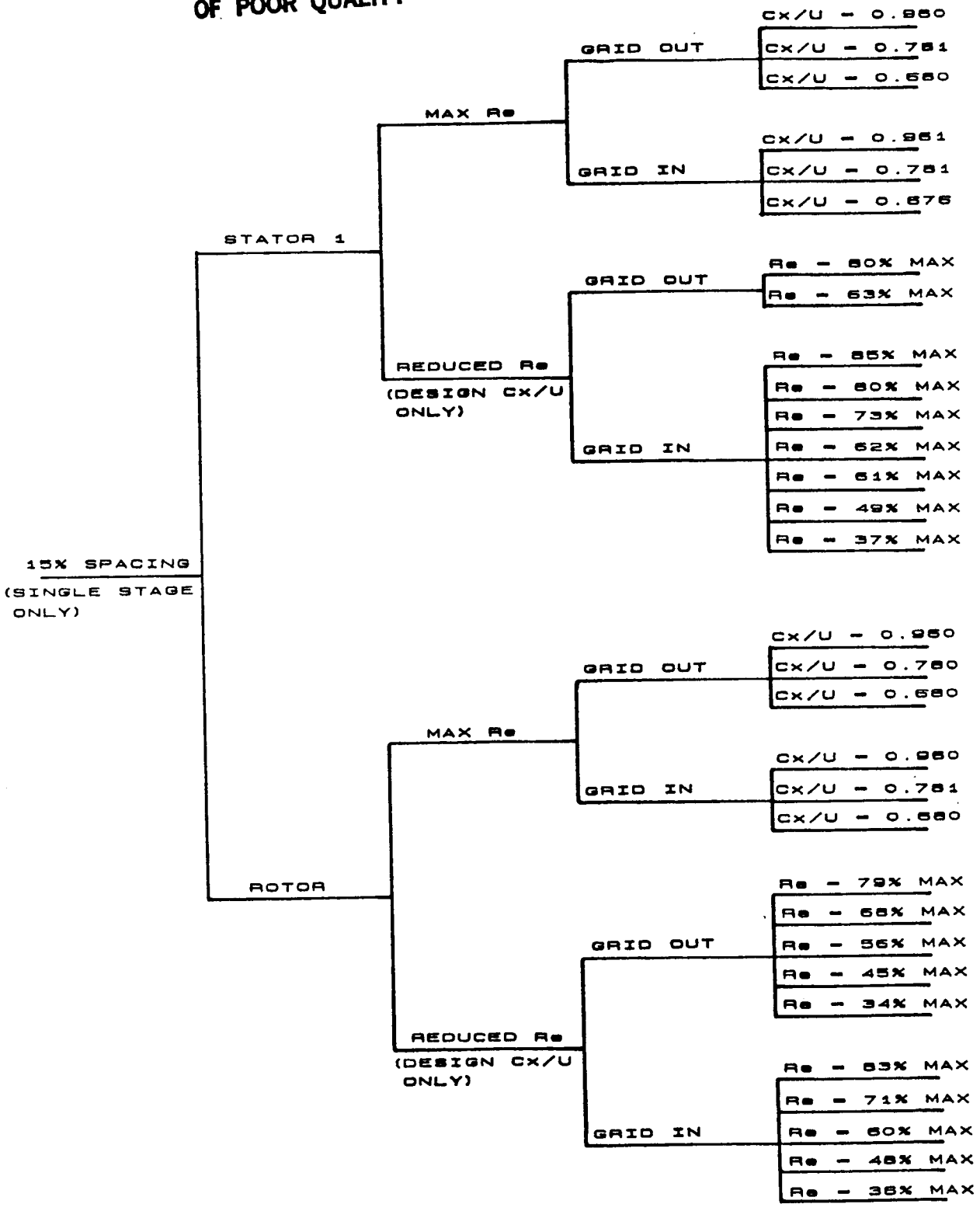
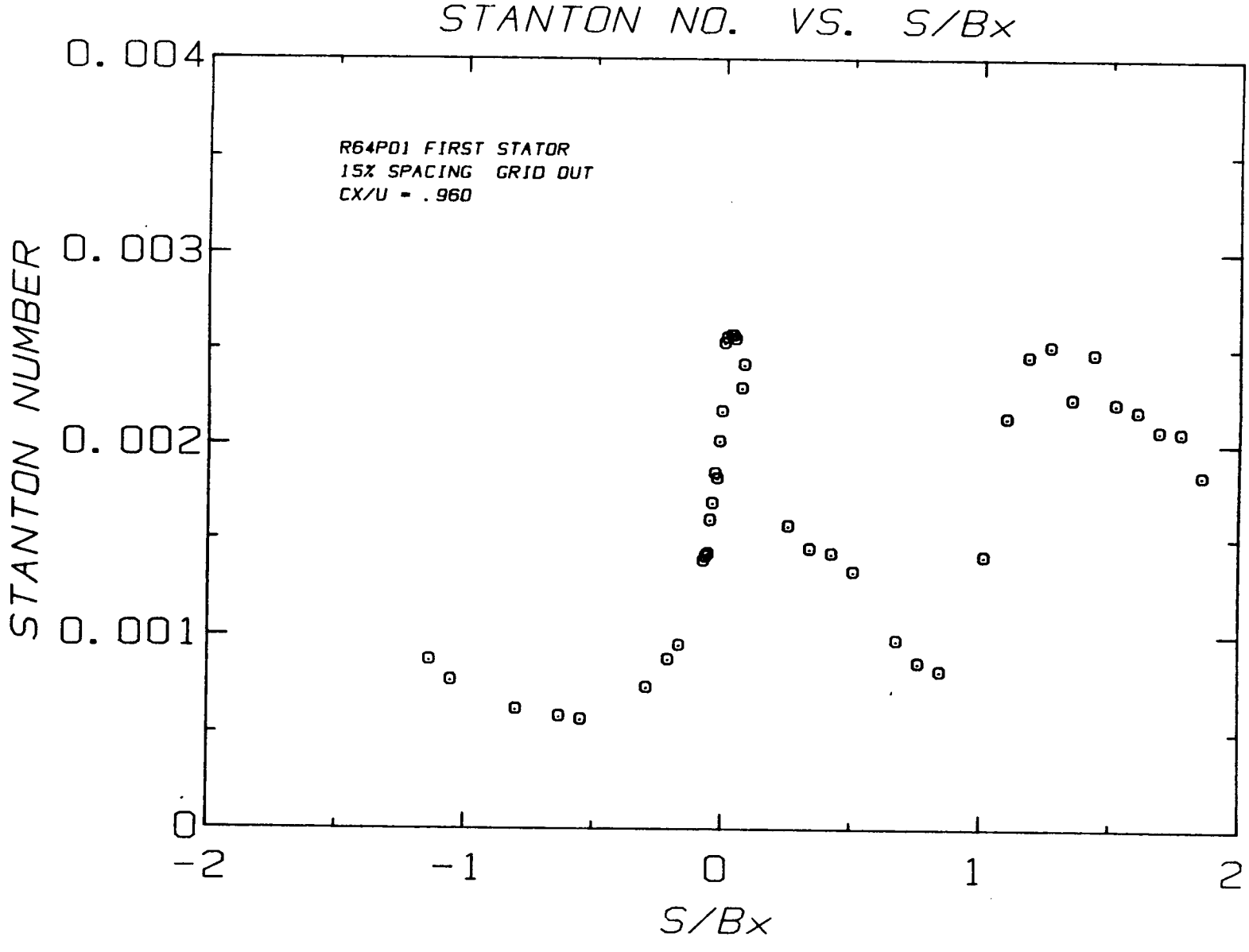
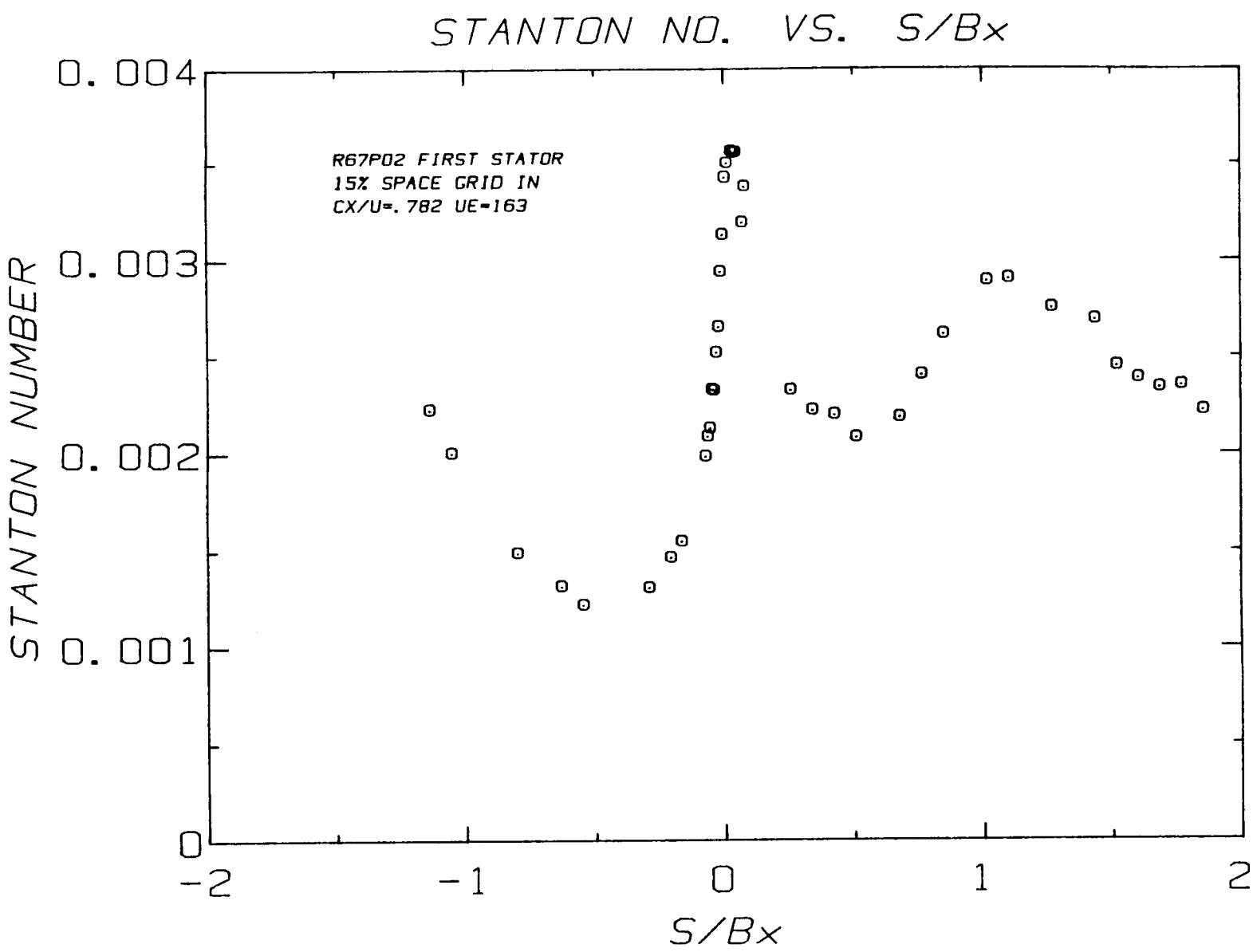
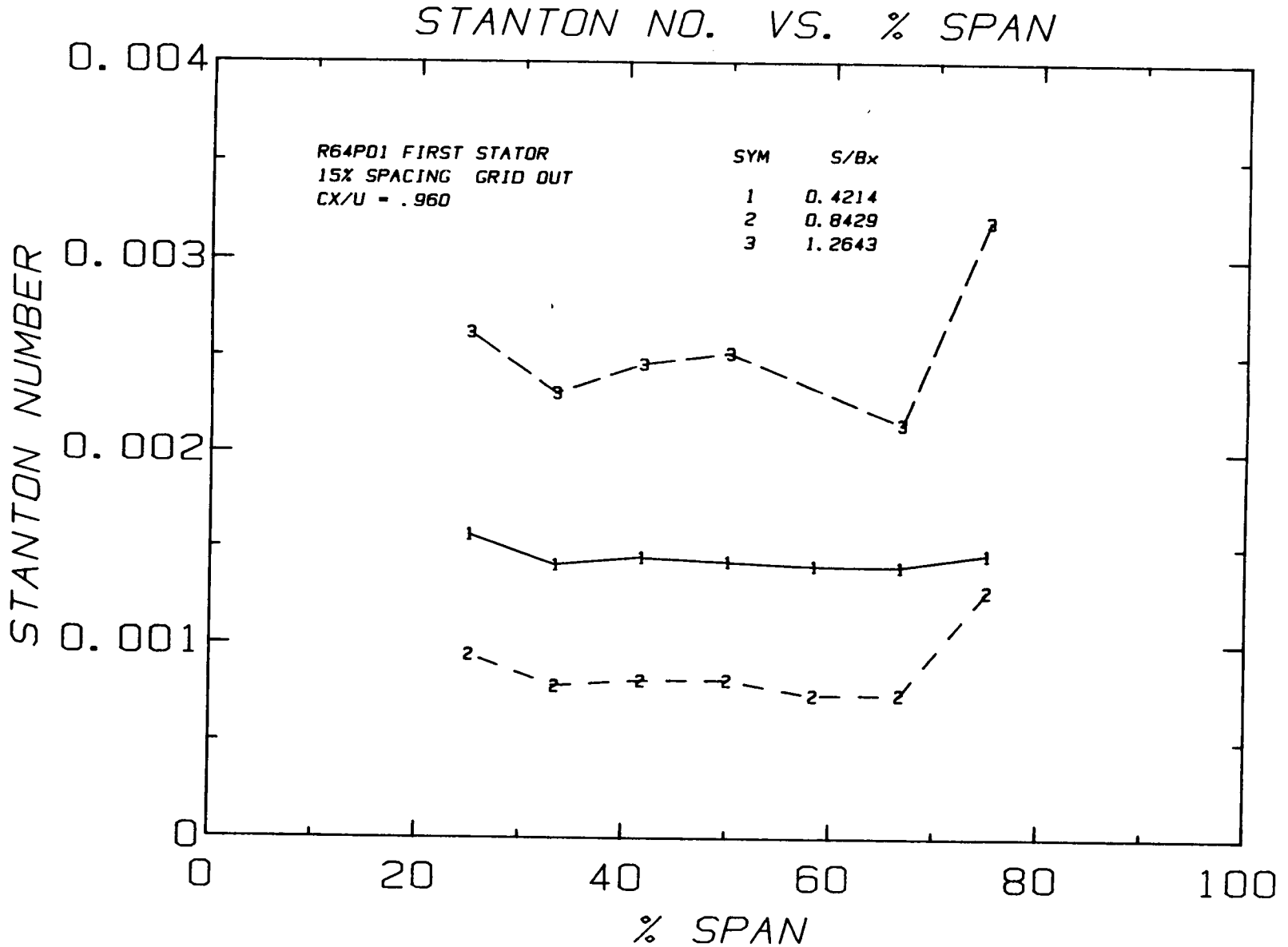
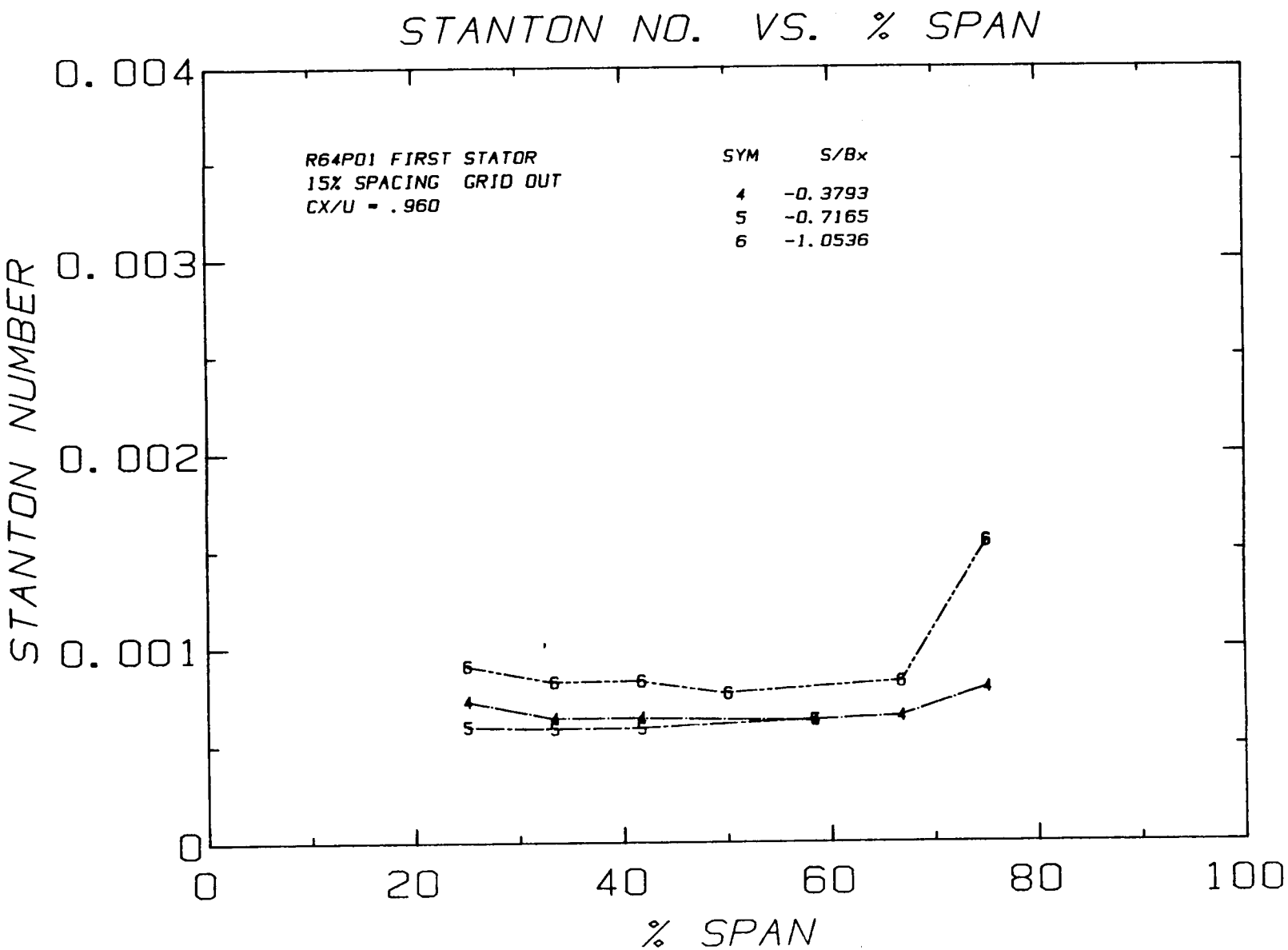


FIG. 5 ORDER OF DATA PRESENTATION APPENDIX I


STANTON NO. VS. S/Bx
R64P01 FIRST STATOR
15% SPACING GRID OUT
CX/U = .960
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


STANTON NO. VS. S/Bx
R67P02 FIRST STATOR
15% SPACE GRID IN
CX/U=.782 UE=163
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


STANTON NO. VS. % SPAN
R64P01 FIRST STATOR
15% SPACING GRID OUT
CX/U = .960
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R64P01 FIRST STATOR
15% SPACING GRID OUT
CX/U = .960
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.960 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 64 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	N	Q-NOM	BX
ENGLISH	53.3	205.4	0.0767	0.01465	0.1380	5.932
SI	11.8	62.6	1.2289	0.02534	1.5662	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.001836	843.3	73.4	23.0
2	10.50	1.770	0.002060	946.4	71.6	22.0
3	10.00	1.686	0.002070	951.2	71.4	21.9
4	9.50	1.601	0.002172	997.7	70.6	21.4
5	9.00	1.517	0.002211	1015.8	70.3	21.3
6	8.50	1.433	0.002471	1135.2	68.6	20.4
7	8.00	1.349	0.002235	1026.7	70.2	21.2
11	7.50	1.264	0.002511	1153.7	68.4	20.2
15	7.00	1.180	0.002457	1128.7	68.7	20.4
16	6.50	1.096	0.002135	981.0	70.9	21.6
17	6.00	1.011	0.001404	645.0	79.5	26.4
22	5.00	0.843	0.000810	372.3	96.8	36.0
26	4.50	0.759	0.000654	392.4	94.7	34.8
27	4.00	0.674	0.000972	446.5	90.0	32.2
29	3.00	0.506	0.001327	609.6	80.7	27.0
33	2.50	0.421	0.001421	652.9	78.9	26.1
37	2.00	0.337	0.001445	663.9	78.5	25.8
38	1.50	0.253	0.001565	718.9	76.6	24.8
41	0.45	0.076	0.002415	1109.3	68.5	20.3
42	0.40	0.067	0.002291	1052.6	69.3	20.7
51	-0.05	-0.008	0.002170	997.1	70.2	21.2
52	-0.10	-0.017	0.002014	925.0	71.4	21.9
53	-0.15	-0.025	0.001820	836.1	73.3	22.9
56	-0.30	-0.051	0.001593	732.1	76.0	24.4
57	-0.35	-0.059	0.001420	652.2	78.6	25.9
58	-0.40	-0.067	0.001407	646.2	78.8	26.0
45	0.25	0.042	0.002549	1171.1	67.7	19.9
46	0.20	0.034	0.002569	1180.1	67.6	19.8
47	0.15	0.025	0.002568	1179.9	67.6	19.8
49	0.05	0.008	0.002557	1174.8	67.7	19.8
50	0.00	0.000	0.002527	1161.0	67.9	19.9
54	-0.20	-0.034	0.001849	849.3	73.0	22.8
55	-0.25	-0.042	0.001681	772.3	74.8	23.8
59	-0.45	-0.076	0.001382	635.0	79.2	26.2
62	-1.00	-0.169	0.000946	434.5	90.4	32.5
63	-1.25	-0.211	0.000871	400.0	93.4	34.1
65	-1.75	-0.295	0.000729	334.8	100.4	38.0
74	-3.25	-0.548	0.000560	257.5	112.2	44.6
75	-3.75	-0.632	0.000577	264.9	110.6	43.7
83	-4.75	-0.801	0.000613	281.8	107.1	41.7
89	-6.25	-1.054	0.000765	351.5	97.4	36.3
93	-6.75	-1.138	0.000868	398.7	92.8	33.8

FIRST STATOR CX/U=.960 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 64 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.3	205.4	0.0767	0.01465	0.1380	5.932
SI	11.8	62.6	1.2289	0.02534	1.5662	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.001460	670.7	78.3	25.7
31	4.00	66.7	0.001394	640.5	79.4	26.3
32	3.50	58.3	0.001400	643.0	79.3	26.3
33	3.00	50.0	0.001421	652.9	78.9	26.1
34	2.50	41.7	0.001443	663.1	78.5	25.9
35	2.00	33.3	0.001404	644.9	79.2	26.2
36	1.50	25.0	0.001560	716.7	76.7	24.9

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.001270	583.5	82.0	27.8
20	4.00	66.7	0.000738	338.9	100.6	38.1
21	3.50	58.3	0.000735	337.5	100.8	38.2
22	3.00	50.0	0.000810	372.3	96.8	36.0
23	2.50	41.7	0.000809	371.4	96.9	36.0
24	2.00	33.3	0.000780	358.5	98.3	36.8
25	1.50	25.0	0.000942	432.8	91.2	32.9

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003192	1466.3	65.2	18.5
9	4.00	66.7	0.002141	983.5	70.9	21.6
11	3.00	50.0	0.002511	1153.7	68.4	20.2
12	2.50	41.7	0.002452	1126.6	68.7	20.4
13	2.00	33.3	0.002300	1056.8	69.7	20.9
14	1.50	25.0	0.002616	1202.0	67.8	19.9

S/BX = -0.37930

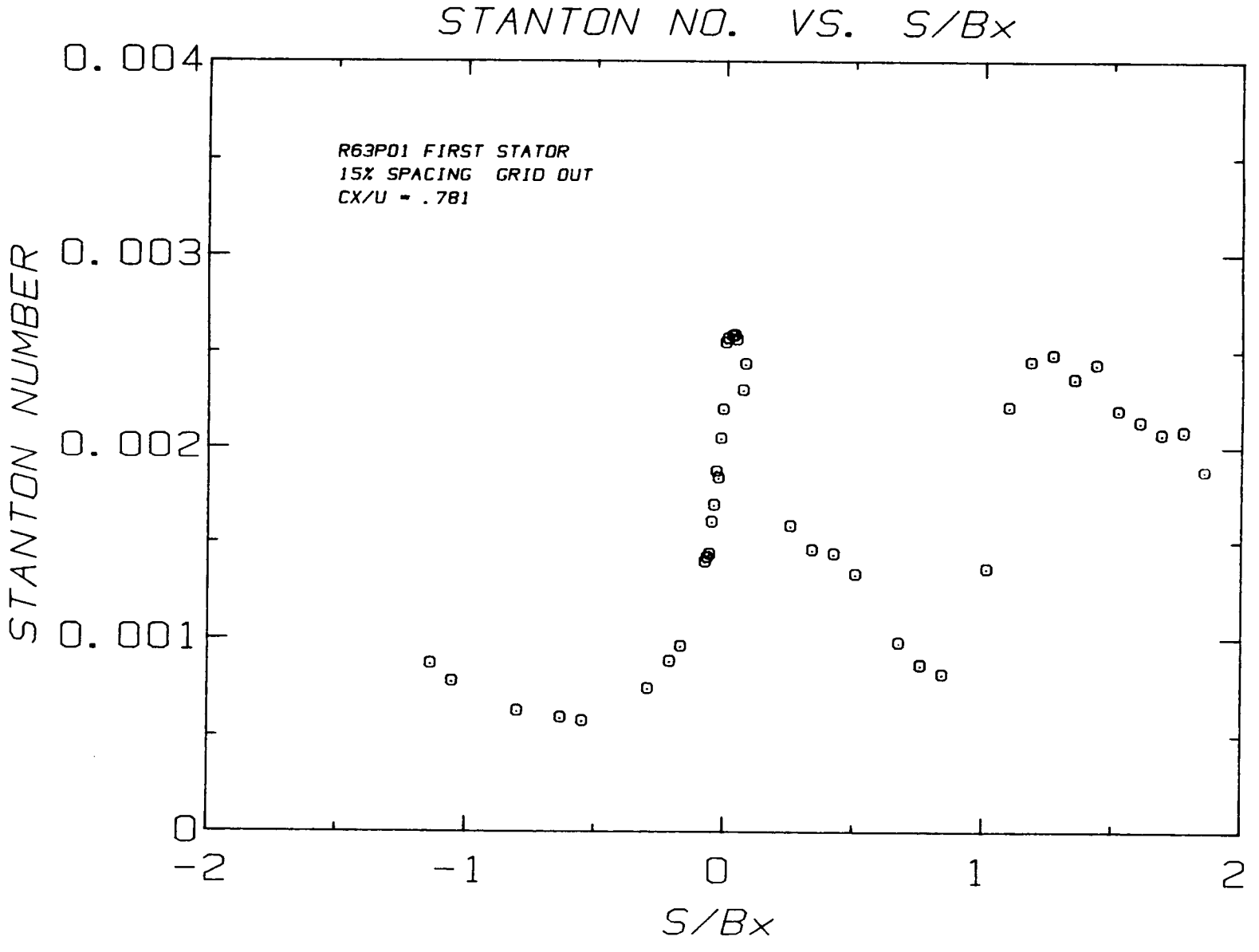
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.000792	363.7	97.0	36.1
67	4.00	66.7	0.000646	296.9	105.7	40.9
68	3.50	58.3	0.000625	286.9	107.3	41.8
70	2.50	41.7	0.000641	294.5	106.1	41.1
71	2.00	33.3	0.000638	293.3	106.2	41.2
72	1.50	25.0	0.000727	334.1	100.4	38.0

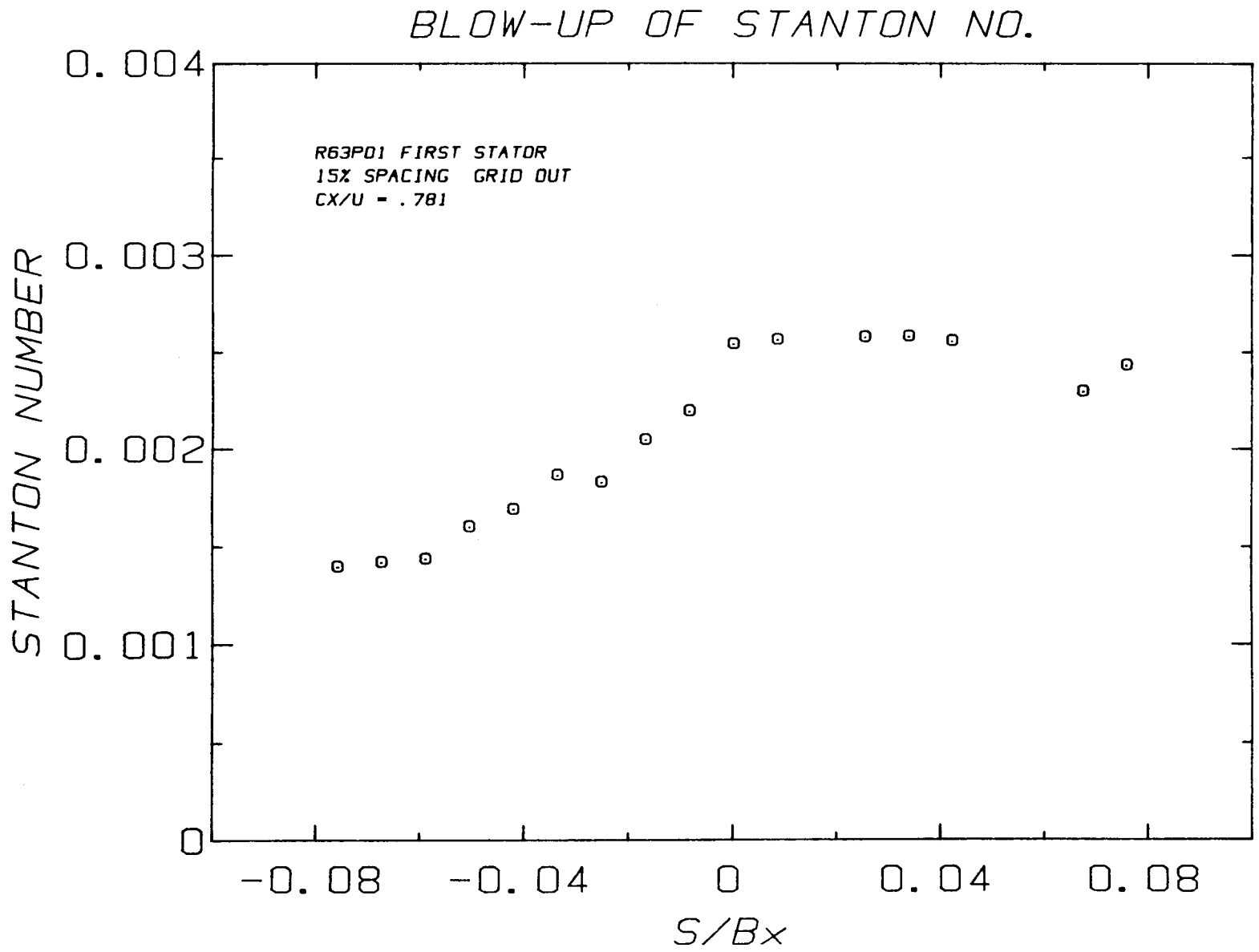
S/BX = -0.71645

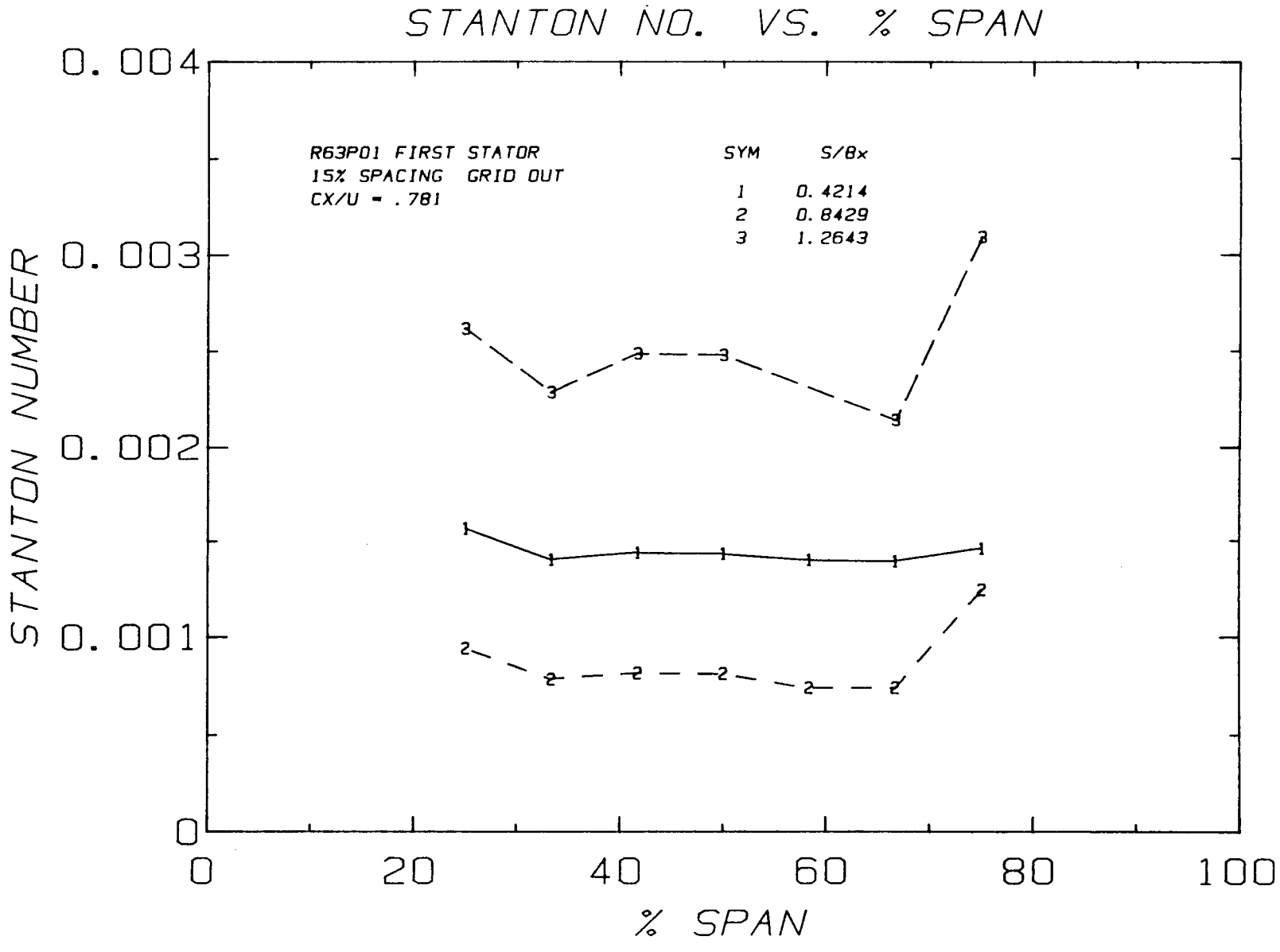
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.000627	288.1	106.4	41.3
80	2.50	41.7	0.000587	269.5	109.5	43.1
81	2.00	33.3	0.000585	268.8	109.7	43.2
82	1.50	25.0	0.000596	273.8	108.8	42.7

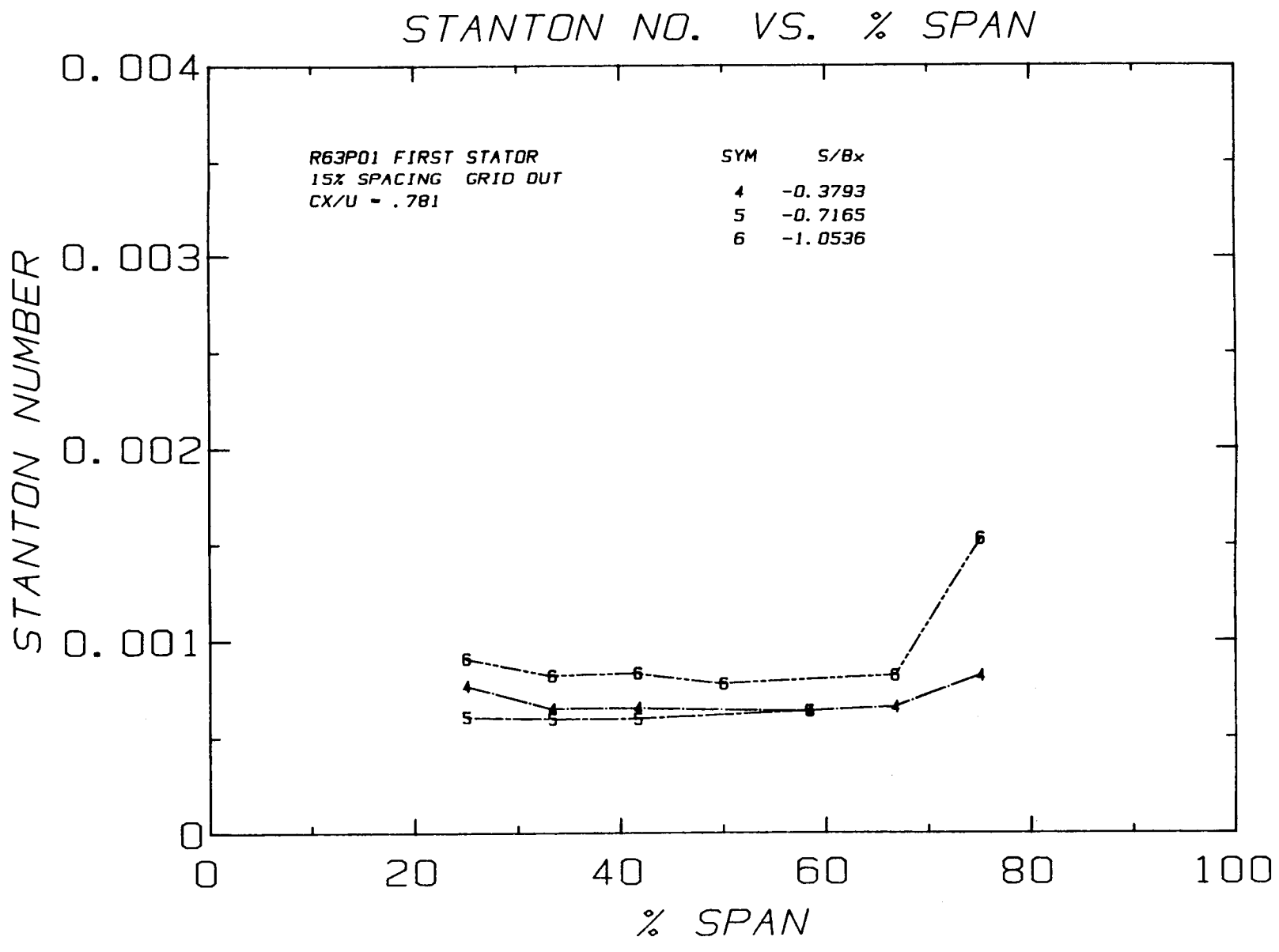
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.001546	710.3	76.5	24.7
87	4.00	66.7	0.000825	378.8	94.6	34.8
89	3.00	50.0	0.000765	351.5	97.4	36.3
90	2.50	41.7	0.000830	381.4	94.4	34.6
91	2.00	33.3	0.000824	378.7	94.6	34.8
92	1.50	25.0	0.000908	417.2	91.3	32.9


STANTON NO. VS. S/Bx
R63P01 FIRST STATOR
15% SPACING GRID OUT
CX/U = .781
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R63P01 FIRST STATOR
15% SPACING GRID OUT
CX/U = .781
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R63P01 FIRST STATOR
15% SPACING GRID OUT
CX/U = .781
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R63P01 FIRST STATOR
15% SPACING GRID OUT
CX/U = .781
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.781 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 63 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	52.8	204.8	0.0762	0.01464	0.1490	5.932
SI	11.5	62.4	1.2199	0.02532	1.6910	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.001862	847.1	74.3	23.5
2	10.50	1.770	0.002078	945.6	72.4	22.4
3	10.00	1.686	0.002066	939.9	72.5	22.5
4	9.50	1.601	0.002128	968.0	71.9	22.2
5	9.00	1.517	0.002187	995.1	71.4	21.9
6	8.50	1.433	0.002427	1104.3	69.7	21.0
7	8.00	1.349	0.002352	1069.9	70.3	21.3
11	7.50	1.264	0.002477	1127.0	69.4	20.8
15	7.00	1.180	0.002441	1110.5	69.6	20.9
16	6.50	1.096	0.002204	1002.7	71.3	21.9
17	6.00	1.011	0.001355	616.7	82.2	27.9
22	5.00	0.843	0.000812	369.3	99.9	37.7
26	4.50	0.759	0.000859	391.0	97.5	36.4
27	4.00	0.674	0.000974	443.3	92.6	33.7
29	3.00	0.506	0.001328	604.4	82.5	28.0
33	2.50	0.421	0.001434	652.4	80.4	26.9
37	2.00	0.337	0.001455	661.8	80.0	26.7
38	1.50	0.253	0.001578	718.0	77.9	25.5
41	0.45	0.076	0.002429	1104.9	69.2	20.7
42	0.40	0.067	0.002292	1042.7	70.2	21.2
51	-0.05	-0.008	0.002192	997.1	71.0	21.6
52	-0.10	-0.017	0.002042	929.2	72.2	22.4
53	-0.15	-0.025	0.001824	830.0	74.5	23.6
56	-0.30	-0.051	0.001597	726.6	77.4	25.2
57	-0.35	-0.059	0.001432	651.4	80.0	26.7
58	-0.40	-0.067	0.001414	643.3	80.4	26.9
45	0.25	0.042	0.002556	1163.1	68.4	20.2
46	0.20	0.034	0.002580	1173.7	68.3	20.2
47	0.15	0.025	0.002575	1171.6	68.3	20.2
49	0.05	0.008	0.002561	1165.4	68.4	20.2
50	0.00	0.000	0.002539	1155.4	68.6	20.3
54	-0.20	-0.034	0.001860	846.4	74.1	23.4
55	-0.25	-0.042	0.001685	766.6	76.2	24.5
59	-0.45	-0.076	0.001390	632.6	80.8	27.1
62	-1.00	-0.169	0.000954	434.1	92.8	33.8
63	-1.25	-0.211	0.000878	399.3	96.0	35.6
65	-1.75	-0.295	0.000737	335.2	103.5	39.7
74	-3.25	-0.548	0.000569	258.9	115.9	46.6
75	-3.75	-0.632	0.000586	266.8	114.1	45.6
83	-4.75	-0.801	0.000622	282.9	110.6	43.7
89	-6.25	-1.054	0.000775	352.4	100.2	37.9
93	-6.75	-1.138	0.000866	394.0	95.7	35.4

FIRST STATOR CX/U=.781 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 63 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	52.8	204.8	0.0762	0.01464	0.1490	5.932
SI	11.5	62.4	1.2199	0.02532	1.6910	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.001461	664.7	79.9	26.6
31	4.00	66.7	0.001394	634.3	81.1	27.3
32	3.50	58.3	0.001402	637.9	81.0	27.2
33	3.00	50.0	0.001434	652.4	80.4	26.9
34	2.50	41.7	0.001440	655.3	80.3	26.8
35	2.00	33.3	0.001402	637.9	81.0	27.2
36	1.50	25.0	0.001565	711.9	78.2	25.7

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.001247	567.1	84.5	29.2
20	4.00	66.7	0.000739	336.4	104.0	40.0
21	3.50	58.3	0.000740	336.5	104.0	40.0
22	3.00	50.0	0.000812	369.3	99.9	37.7
23	2.50	41.7	0.000814	370.5	99.7	37.6
24	2.00	33.3	0.000784	356.5	101.4	38.6
25	1.50	25.0	0.000941	428.2	94.0	34.4

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003093	1407.3	66.2	19.0
9	4.00	66.7	0.002140	973.6	71.9	22.1
11	3.00	50.0	0.002477	1127.0	69.4	20.8
12	2.50	41.7	0.002484	1130.3	69.3	20.7
13	2.00	33.3	0.002284	1039.3	70.7	21.5
14	1.50	25.0	0.002615	1189.7	68.5	20.3

S/BX = -0.37930

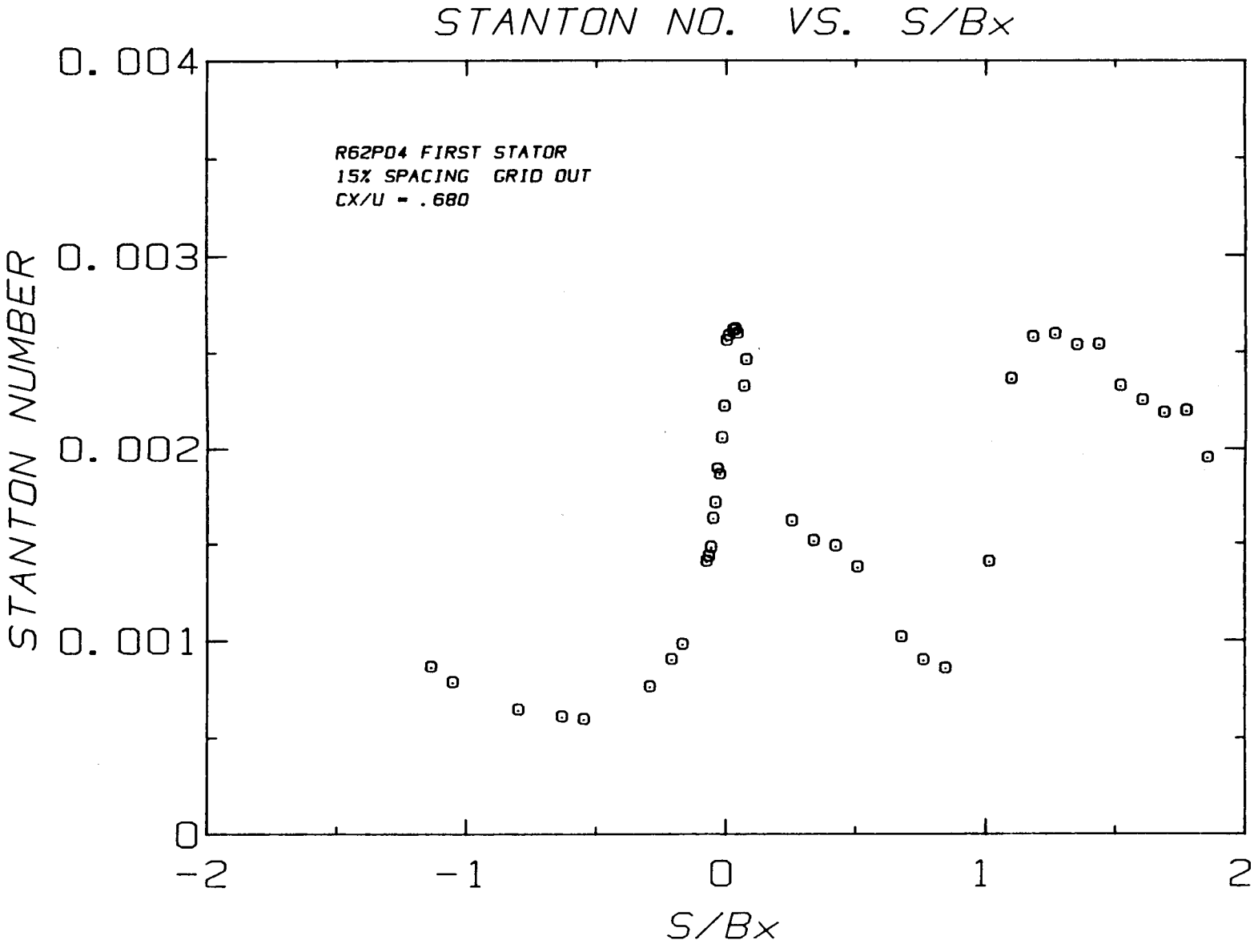
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
29	3.00	50.0	0.001328	604.4	82.5	28.0
30	4.50	75.0	0.001461	664.7	79.9	26.6
31	4.00	66.7	0.001394	634.3	81.1	27.3
32	3.50	58.3	0.001402	637.9	81.0	27.2
33	3.00	50.0	0.001434	652.4	80.4	26.9

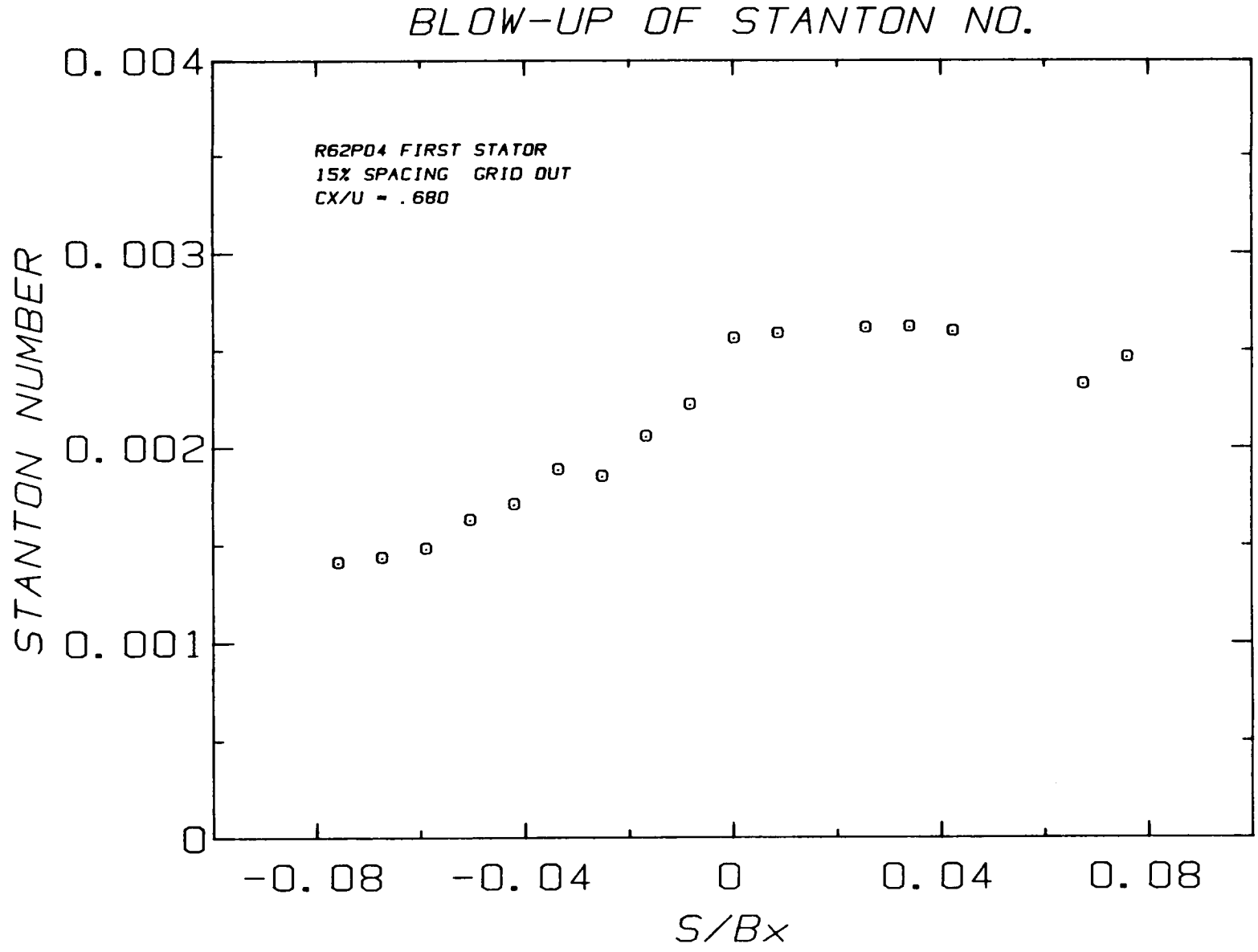
S/BX = -0.71645

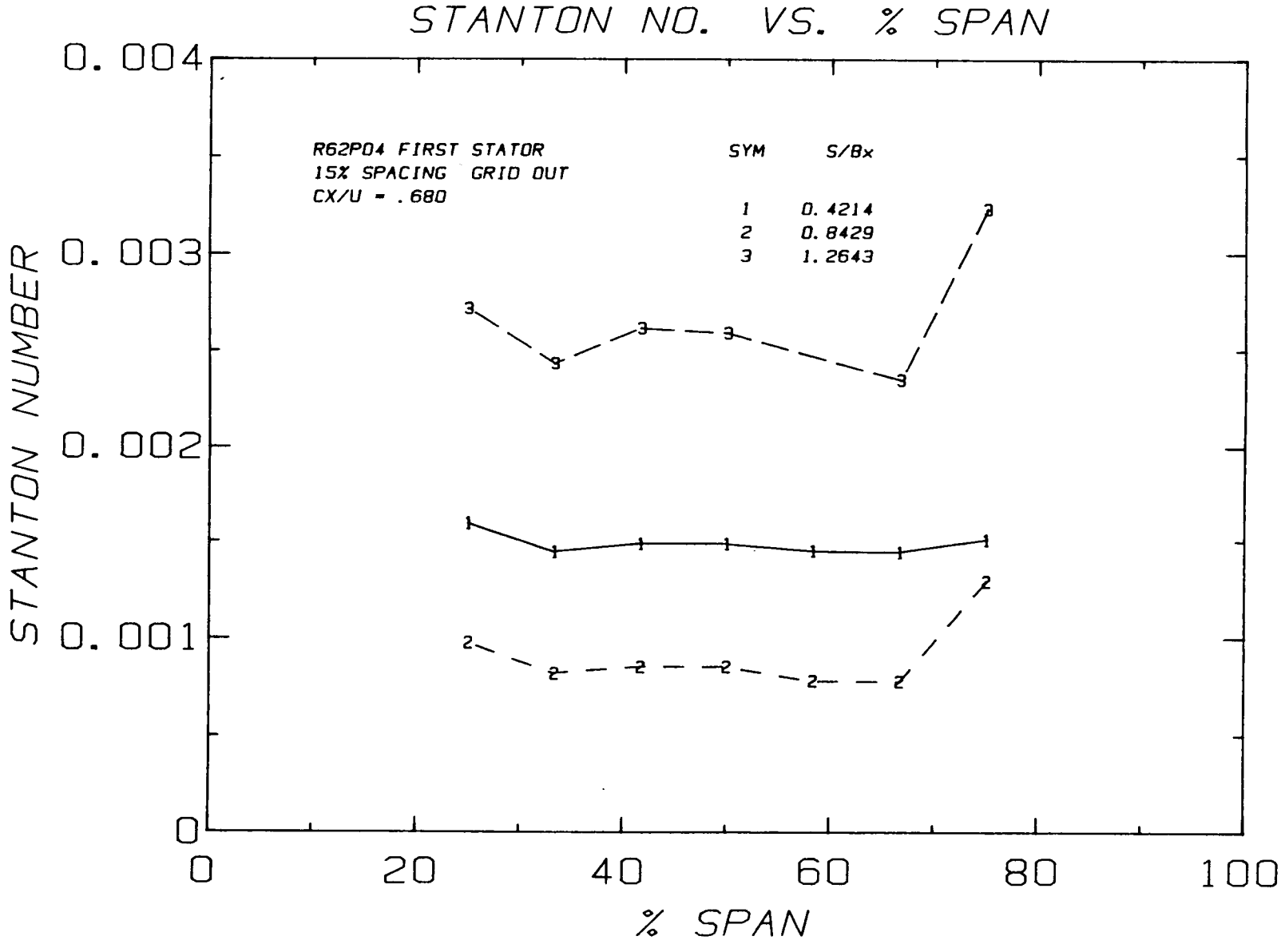
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
37	3.00	50.0	0.001455	661.8	80.0	26.7
38	3.00	50.0	0.001578	718.0	77.9	25.5
39	3.00	50.0	0.001139	518.4	87.0	30.5
41	3.00	50.0	0.002429	1104.9	69.2	20.7
43	3.00	50.0	0.002293	1043.2	70.2	21.2

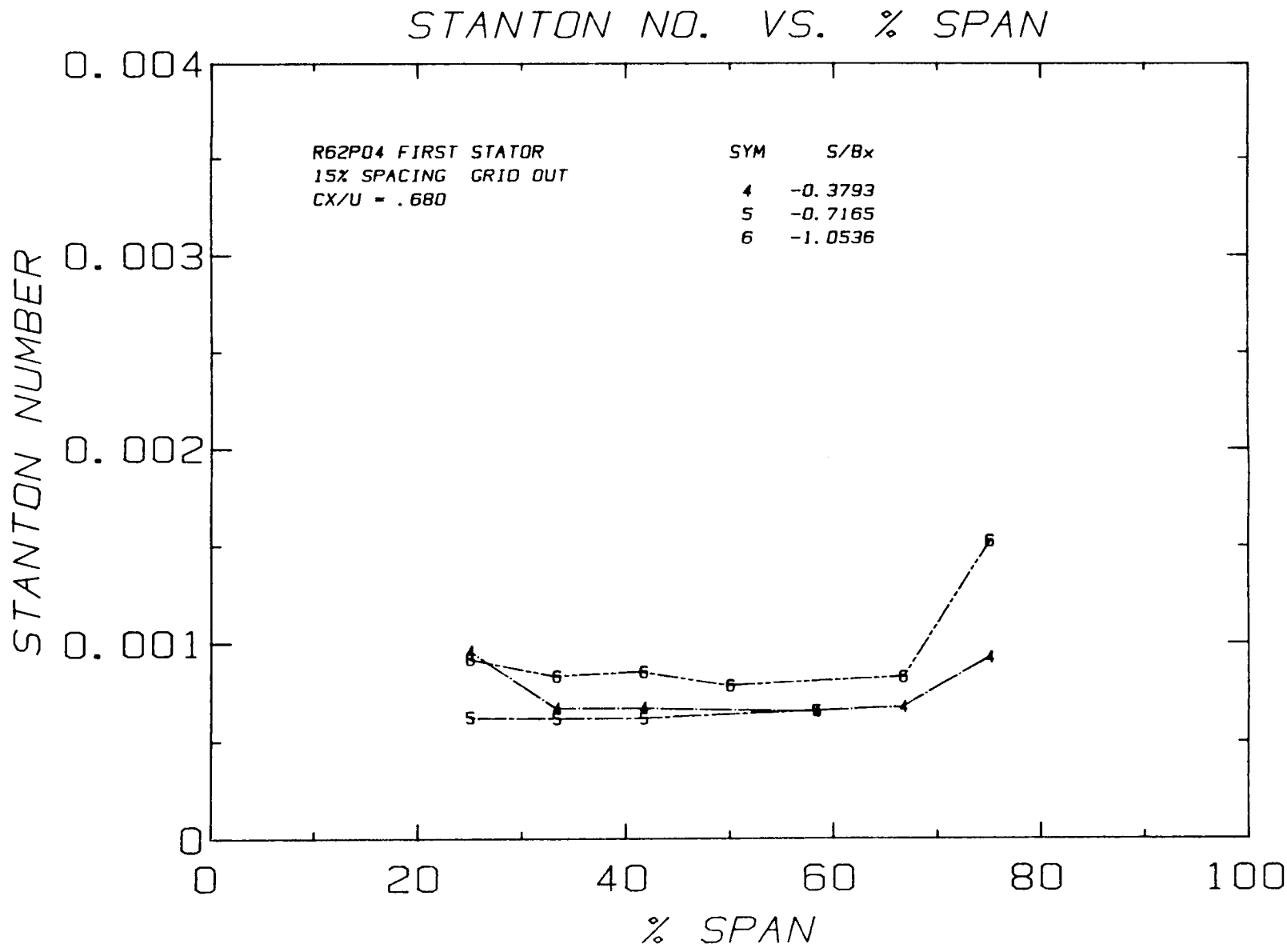
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
47	3.00	50.0	0.002082	947.1	71.9	22.2
48	3.00	50.0	0.002154	980.1	71.3	21.8
49	3.00	50.0	0.002134	970.7	71.4	21.9
50	3.00	50.0	0.002146	976.5	71.3	21.8
51	3.00	50.0	0.002192	997.1	71.0	21.6
52	3.00	50.0	0.002042	929.2	72.2	22.4
53	3.00	50.0	0.001824	830.0	74.5	23.6


STANTON NO. VS. S/Bx
R62P04 FIRST STATOR
15% SPACING GRID OUT
CX/U = .680
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R62P04 FIRST STATOR
15% SPACING GRID OUT
CX/U = .680
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R62P04 FIRST STATOR
15% SPACING GRID OUT
CX/U = .680
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R62P04 FIRST STATOR
15% SPACING GRID OUT
CX/U = .680
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.680 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 62 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	52.6	205.0	0.0756	0.01464	0.1500	5.932
SI	11.4	62.5	1.2105	0.02532	1.7023	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.001944	878.9	73.5	23.0
2	10.50	1.770	0.002191	990.5	71.5	21.9
3	10.00	1.686	0.002181	985.7	71.5	22.0
4	9.50	1.601	0.002246	1015.5	70.9	21.6
5	9.00	1.517	0.002322	1049.5	70.4	21.3
6	8.50	1.433	0.002536	1146.3	69.0	20.6
7	8.00	1.349	0.002532	1144.6	69.0	20.6
11	7.50	1.264	0.002589	1170.2	68.7	20.4
15	7.00	1.180	0.002574	1163.6	68.8	20.4
16	6.50	1.096	0.002356	1065.2	70.2	21.2
17	6.00	1.011	0.001402	633.8	81.4	27.4
22	5.00	0.843	0.000852	385.4	98.1	36.7
26	4.50	0.759	0.000896	405.1	96.0	35.6
27	4.00	0.674	0.001014	458.5	91.3	32.9
29	3.00	0.506	0.001375	621.5	81.6	27.6
33	2.50	0.421	0.001484	670.6	79.6	26.4
37	2.00	0.337	0.001511	683.1	79.1	26.2
38	1.50	0.253	0.001612	728.8	77.5	25.3
41	0.45	0.076	0.002458	1111.3	69.0	20.6
42	0.40	0.067	0.002320	1048.9	70.0	21.1
51	-0.05	-0.008	0.002216	1001.6	70.8	21.5
52	-0.10	-0.017	0.002053	928.0	72.2	22.3
53	-0.15	-0.025	0.001849	835.8	74.2	23.4
56	-0.30	-0.051	0.001623	733.8	77.0	25.0
57	-0.35	-0.059	0.001477	667.5	79.3	26.3
58	-0.40	-0.067	0.001431	646.7	80.1	26.7
45	0.25	0.042	0.002594	1172.7	68.2	20.1
46	0.20	0.034	0.002616	1182.7	68.1	20.0
47	0.15	0.025	0.002611	1180.4	68.1	20.1
49	0.05	0.008	0.002582	1167.4	68.3	20.2
50	0.00	0.000	0.002556	1155.4	68.4	20.2
54	-0.20	-0.034	0.001884	851.5	73.8	23.2
55	-0.25	-0.042	0.001704	770.1	76.0	24.4
59	-0.45	-0.076	0.001405	635.2	80.6	27.0
62	-1.00	-0.169	0.000977	441.6	92.1	33.4
63	-1.25	-0.211	0.000899	406.3	95.3	35.2
65	-1.75	-0.295	0.000758	342.6	102.5	39.2
74	-3.25	-0.548	0.000591	267.1	114.3	45.7
75	-3.75	-0.632	0.000605	273.5	112.8	44.9
83	-4.75	-0.801	0.000641	289.6	109.4	43.0
89	-6.25	-1.054	0.000782	353.4	100.0	37.8
93	-6.75	-1.138	0.000862	389.6	96.1	35.6

FIRST STATOR CX/U=.680 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 62 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	52.6	205.0	0.0756	0.01464	0.1500	5.933
SI	11.4	62.5	1.2105	0.02532	1.7023	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.001505	680.2	79.2	26.2
31	4.00	66.7	0.001440	650.9	80.4	26.9
32	3.50	58.3	0.001447	654.2	80.2	26.8
33	3.00	50.0	0.001484	670.6	79.6	26.4
34	2.50	41.7	0.001483	670.6	79.6	26.4
35	2.00	33.3	0.001440	651.1	80.3	26.9
36	1.50	25.0	0.001590	718.8	77.9	25.5

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.001292	583.9	83.6	28.7
20	4.00	66.7	0.000776	350.9	102.1	38.9
21	3.50	58.3	0.000779	352.2	101.9	38.8
22	3.00	50.0	0.000852	385.4	98.1	36.7
23	2.50	41.7	0.000852	385.1	98.1	36.7
24	2.00	33.3	0.000817	369.2	99.8	37.7
25	1.50	25.0	0.000975	440.7	92.8	33.8

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003230	1460.0	65.6	18.6
9	4.00	66.7	0.002344	1059.7	70.3	21.3
11	3.00	50.0	0.002589	1170.2	68.7	20.4
12	2.50	41.7	0.002613	1181.3	68.5	20.3
13	2.00	33.3	0.002430	1098.5	69.7	20.9
14	1.50	25.0	0.002717	1228.2	67.9	20.0

S/BX = -0.37930

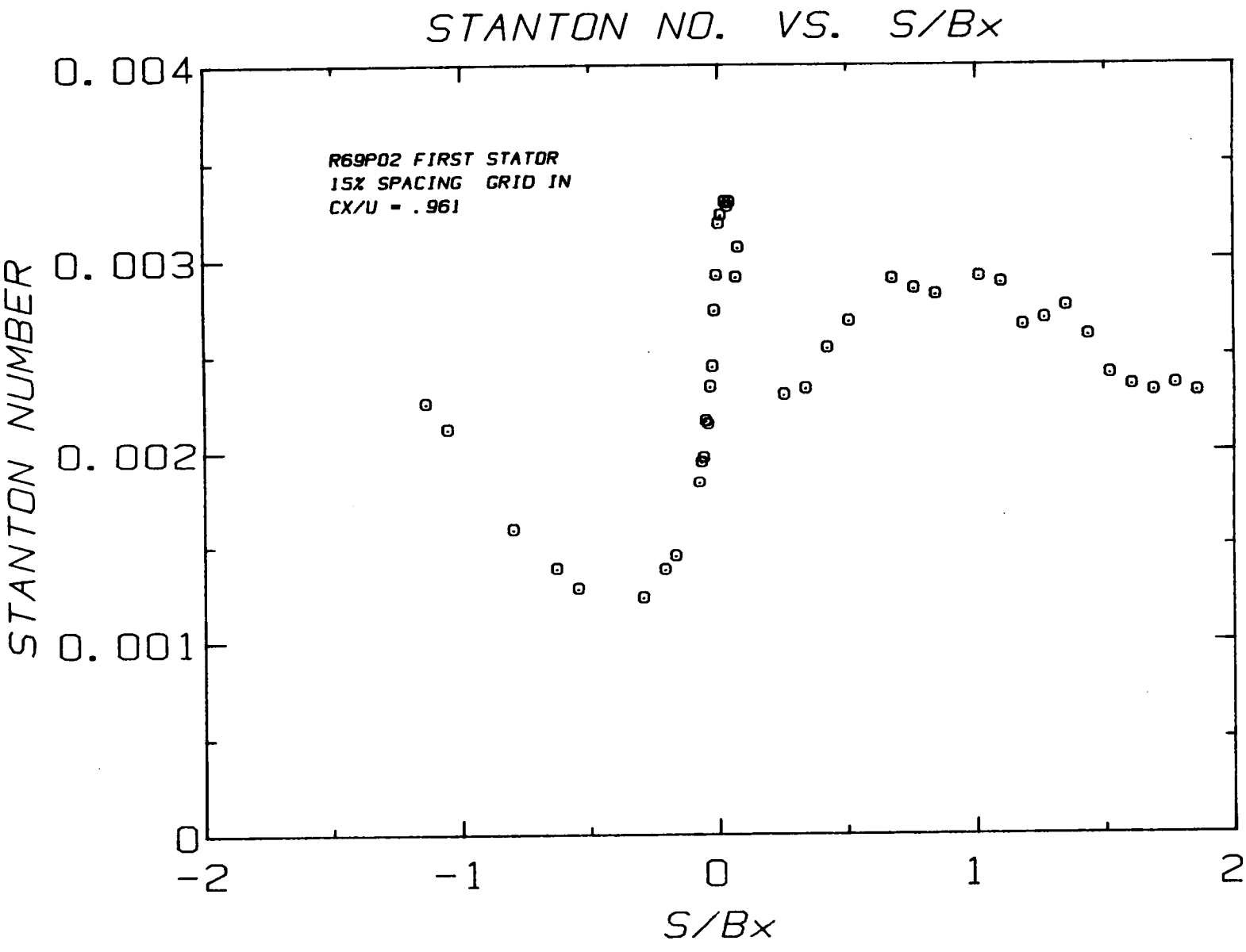
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.000927	419.0	94.1	34.5
67	4.00	66.7	0.000674	304.6	107.9	42.2
68	3.50	58.3	0.000652	294.8	109.5	43.1
70	2.50	41.7	0.000669	302.3	108.3	42.4
71	2.00	33.3	0.000666	301.0	108.5	42.5
72	1.50	25.0	0.000959	433.4	92.8	33.8

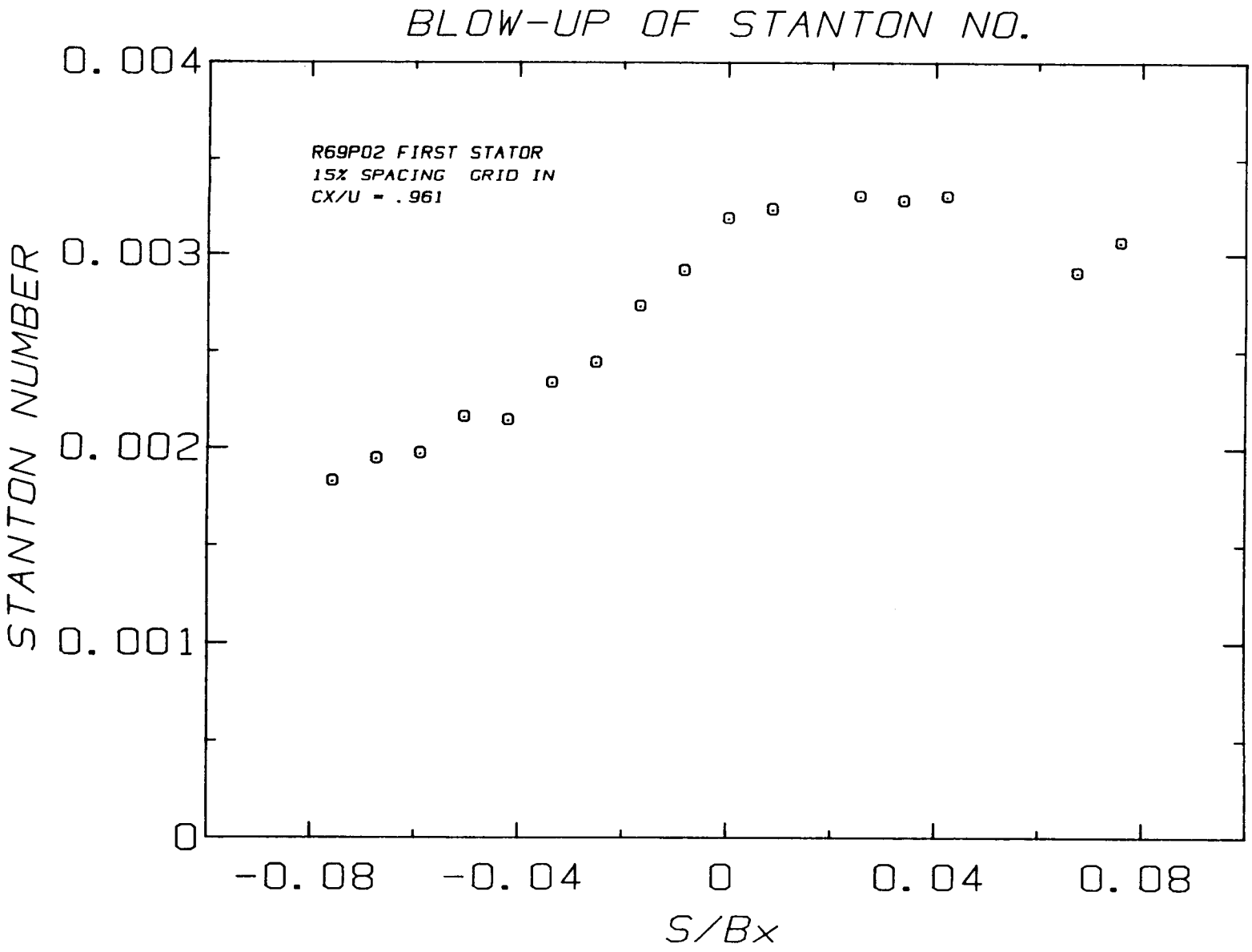
S/BX = -0.71645

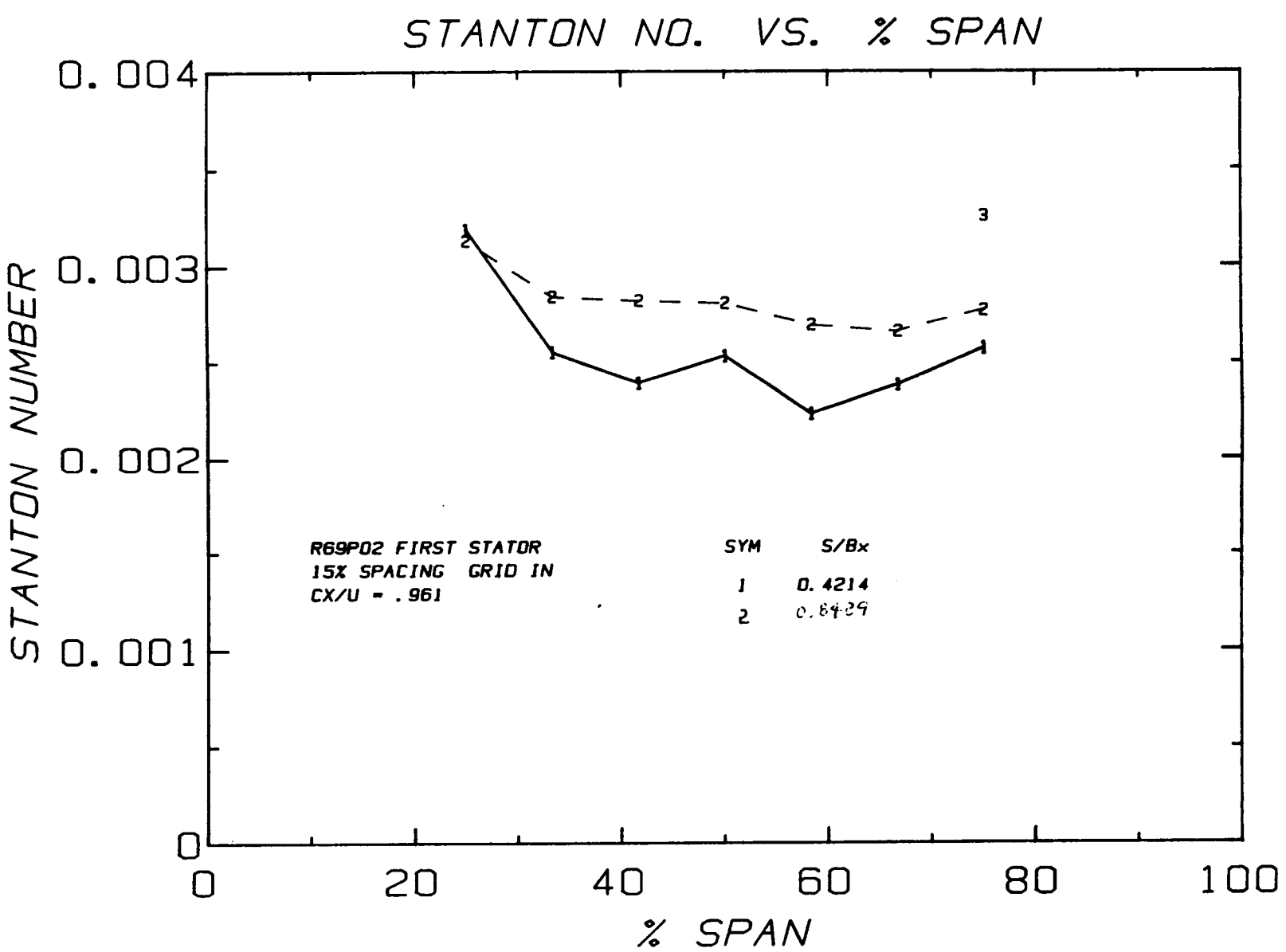
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.000654	295.6	108.7	42.6
80	2.50	41.7	0.000615	278.1	111.7	44.3
81	2.00	33.3	0.000614	277.7	111.8	44.3
82	1.50	25.0	0.000620	280.5	111.3	44.1

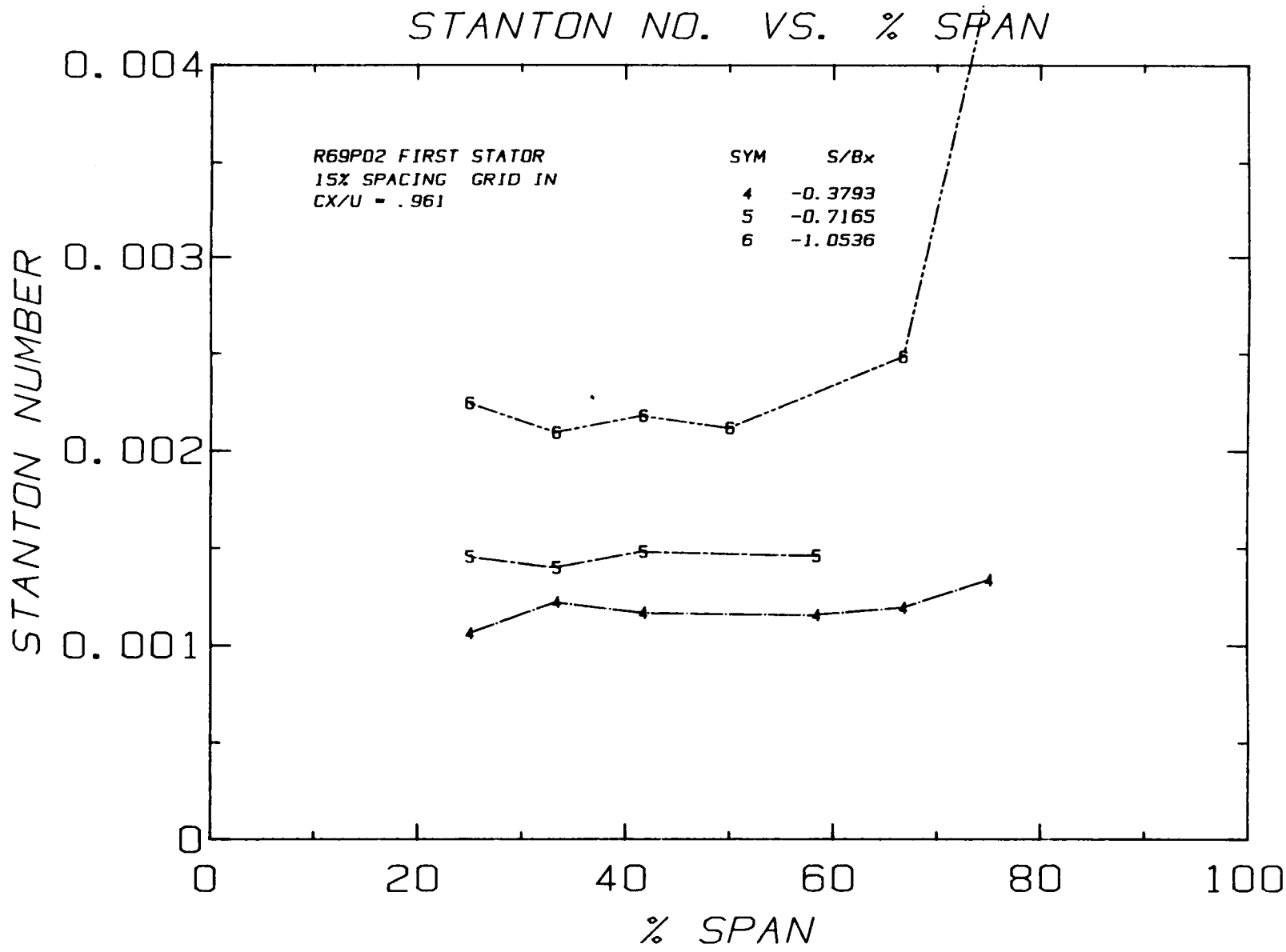
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.001525	689.6	78.4	25.8
87	4.00	66.7	0.000826	373.2	97.8	36.6
89	3.00	50.0	0.000782	353.4	100.0	37.8
90	2.50	41.7	0.000853	385.4	96.5	35.9
91	2.00	33.3	0.000830	375.0	97.6	36.4
92	1.50	25.0	0.000918	415.1	93.8	34.3


STANTON NO. VS. S/Bx
R69P02 FIRST STATOR
15% SPACING GRID IN
CX/U = .961
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R69P02 FIRST STATOR
15% SPACING GRID IN
CX/U = .961
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN
R69P02 FIRST STATOR
15% SPACING GRID IN
CX/U = .961
SYM S/Bx
1 0.4214
2 0.8429


STANTON NO. VS. % SPAN
R69P02 FIRST STATOR
15% SPACING GRID IN
CX/U = .961
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.961 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 69 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.8	205.1	0.0762	0.01468	0.2620	5.932
SI	12.7	62.5	1.2214	0.02539	2.9734	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002300	1046.8	85.1	29.5
2	10.50	1.770	0.002340	1065.0	85.0	29.4
3	10.00	1.686	0.002304	1048.6	85.4	29.7
4	9.50	1.601	0.002336	1062.9	85.1	29.5
5	9.00	1.517	0.002396	1090.2	84.5	29.1
6	8.50	1.433	0.002598	1182.0	82.3	27.9
7	8.00	1.349	0.002749	1251.0	80.9	27.2
11	7.50	1.264	0.002685	1221.7	81.5	27.5
15	7.00	1.180	0.002651	1206.3	81.8	27.7
16	6.50	1.096	0.002873	1307.5	79.8	26.6
17	6.00	1.011	0.002903	1321.1	79.5	26.4
22	5.00	0.843	0.002809	1278.2	80.3	26.8
26	4.50	0.759	0.002841	1292.6	80.0	26.7
27	4.00	0.674	0.002893	1316.2	79.5	26.4
29	3.00	0.506	0.002672	1215.9	81.5	27.5
33	2.50	0.421	0.002532	1152.4	82.9	28.3
37	2.00	0.337	0.002322	1056.5	85.3	29.6
38	1.50	0.253	0.002291	1042.6	85.7	29.8
41	0.45	0.076	0.003058	1391.3	78.0	25.5
42	0.40	0.067	0.002902	1320.6	79.2	26.2
51	-0.05	-0.008	0.002913	1325.3	79.1	26.2
52	-0.10	-0.017	0.002729	1241.9	80.7	27.0
53	-0.15	-0.025	0.002438	1109.4	83.7	28.7
56	-0.30	-0.051	0.002157	981.7	87.3	30.7
57	-0.35	-0.059	0.001968	895.5	90.3	32.4
58	-0.40	-0.067	0.001941	883.4	90.8	32.6
45	0.25	0.042	0.003292	1498.1	76.4	24.6
46	0.20	0.034	0.003269	1487.6	76.5	24.7
47	0.15	0.025	0.003293	1498.5	76.4	24.6
49	0.05	0.008	0.003225	1467.5	76.8	24.9
50	0.00	0.000	0.003181	1447.4	77.1	25.1
54	-0.20	-0.034	0.002333	1061.5	84.9	29.4
55	-0.25	-0.042	0.002140	973.8	87.6	30.9
59	-0.45	-0.076	0.001825	830.4	93.0	33.9
62	-1.00	-0.169	0.001444	657.2	102.8	39.3
63	-1.25	-0.211	0.001372	624.5	105.2	40.7
65	-1.75	-0.295	0.001226	557.8	110.9	43.9
74	-3.25	-0.548	0.001274	579.6	108.7	42.6
75	-3.75	-0.632	0.001379	627.5	104.8	40.4
83	-4.75	-0.801	0.001584	720.6	98.4	36.9
89	-6.25	-1.054	0.002116	962.8	87.8	31.0
93	-6.75	-1.138	0.002252	1024.6	85.9	29.9

FIRST STATOR CX/U=.961 GRID IN -15% SPACING

SPANWISE HEAT TRANSFER RUN: 69 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.8	205.1	0.0762	0.01468	0.2620	5.932
SI	12.7	62.5	1.2214	0.02539	2.9734	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002570	1169.5	82.5	28.0
31	4.00	66.7	0.002378	1082.2	84.7	29.3
32	3.50	58.3	0.002229	1014.5	86.6	30.3
33	3.00	50.0	0.002532	1152.4	82.9	28.3
34	2.50	41.7	0.002389	1087.1	84.5	29.2
35	2.00	33.3	0.002553	1161.7	82.7	28.1
36	1.50	25.0	0.003188	1450.8	77.2	25.1

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002770	1260.6	80.6	27.0
20	4.00	66.7	0.002660	1210.3	81.7	27.6
21	3.50	58.3	0.002695	1226.3	81.3	27.4
22	3.00	50.0	0.002809	1278.2	80.3	26.8
23	2.50	41.7	0.002822	1284.3	80.2	26.8
24	2.00	33.3	0.002843	1293.7	80.0	26.7
25	1.50	25.0	0.003134	1425.9	77.7	25.4

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003259	1483.0	76.9	24.9
9	4.00	66.7	999.000000*********		999.0	537.2
11	3.00	50.0	0.002685	1221.7	81.5	27.5
12	2.50	41.7	0.002679	1218.9	81.5	27.5
13	2.00	33.3	0.002494	1134.8	83.4	28.6
14	1.50	25.0	0.002895	1317.6	79.6	26.4

S/BX = -0.37930

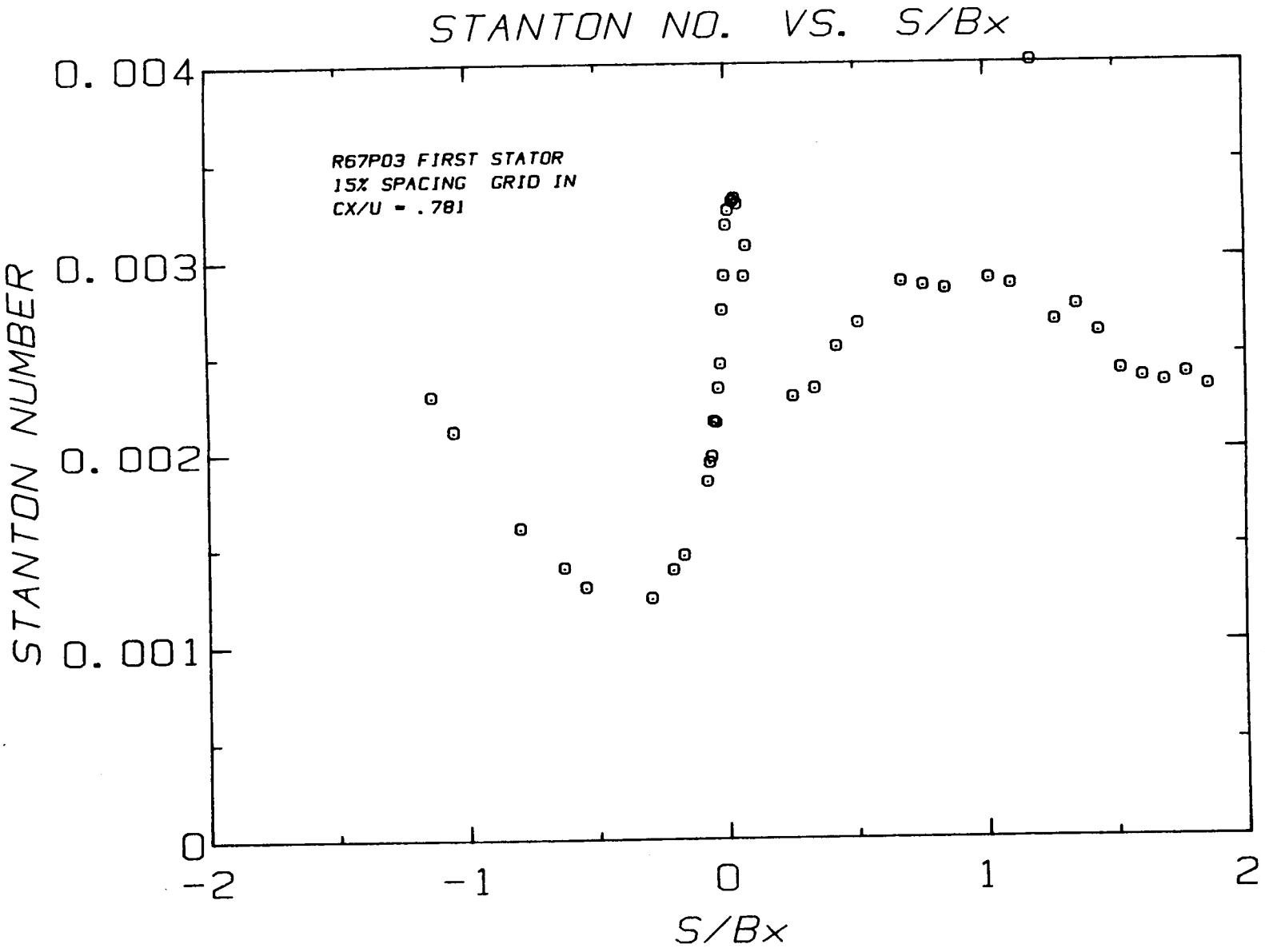
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001336	608.1	106.5	41.4
67	4.00	66.7	0.001193	543.1	112.3	44.6
68	3.50	58.3	0.001156	526.1	114.1	45.6
70	2.50	41.7	0.001168	531.5	113.5	45.3
71	2.00	33.3	0.001223	556.6	111.0	43.9
72	1.50	25.0	0.001061	483.0	119.0	48.3

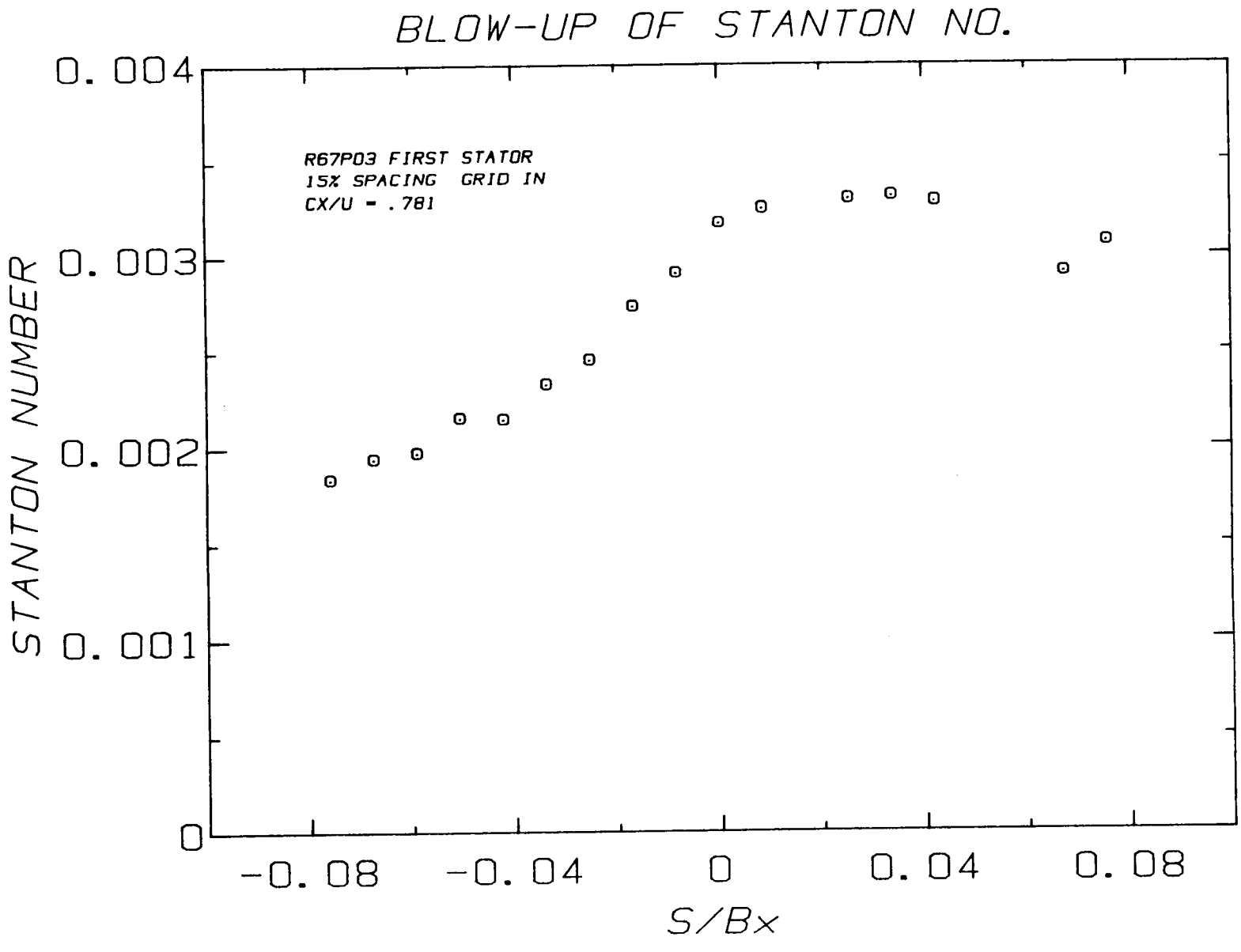
S/BX = -0.71645

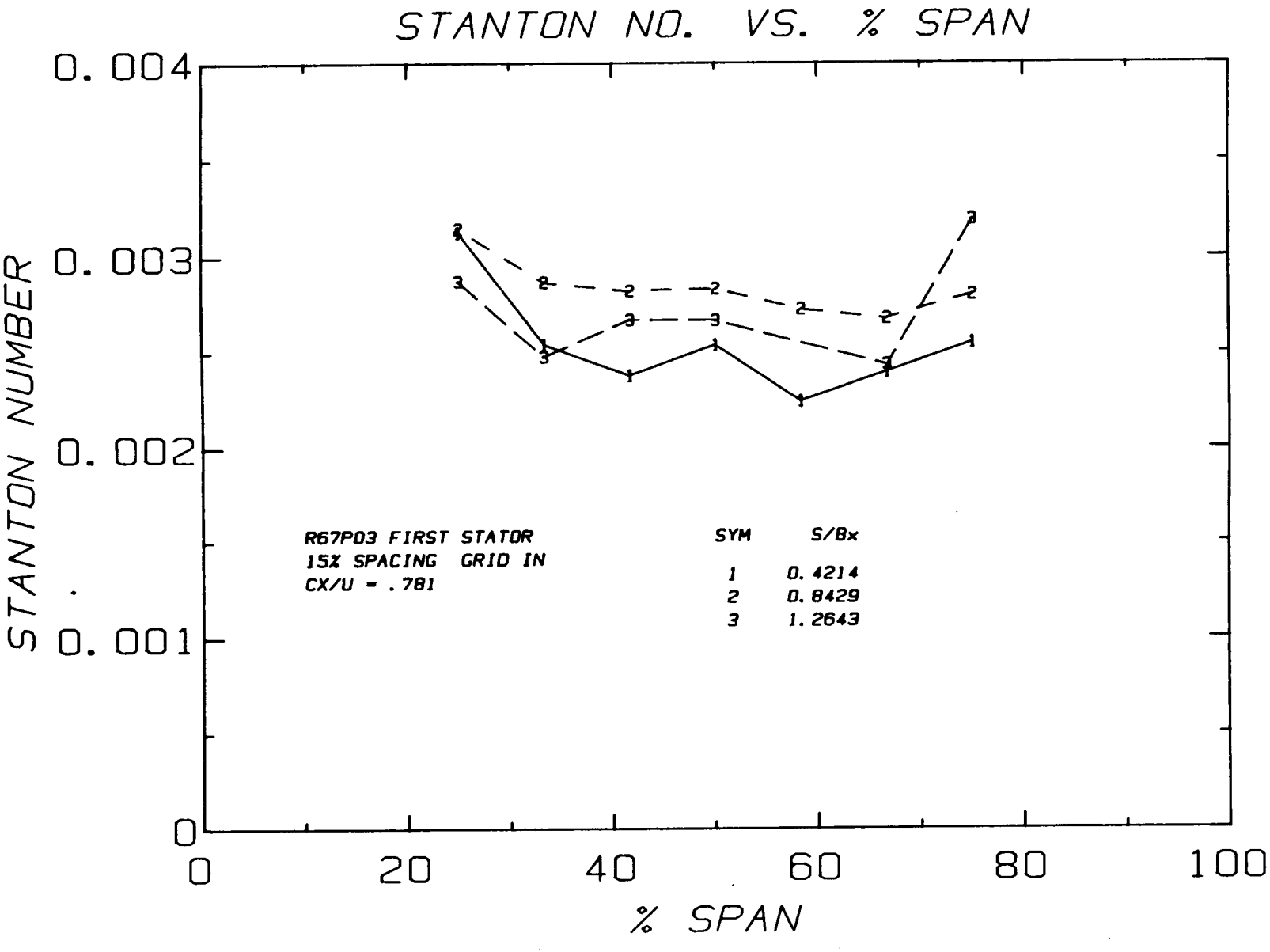
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001460	664.2	102.1	38.9
80	2.50	41.7	0.001481	674.0	101.4	38.6
81	2.00	33.3	0.001399	636.5	104.0	40.0
82	1.50	25.0	0.001454	661.9	102.2	39.0

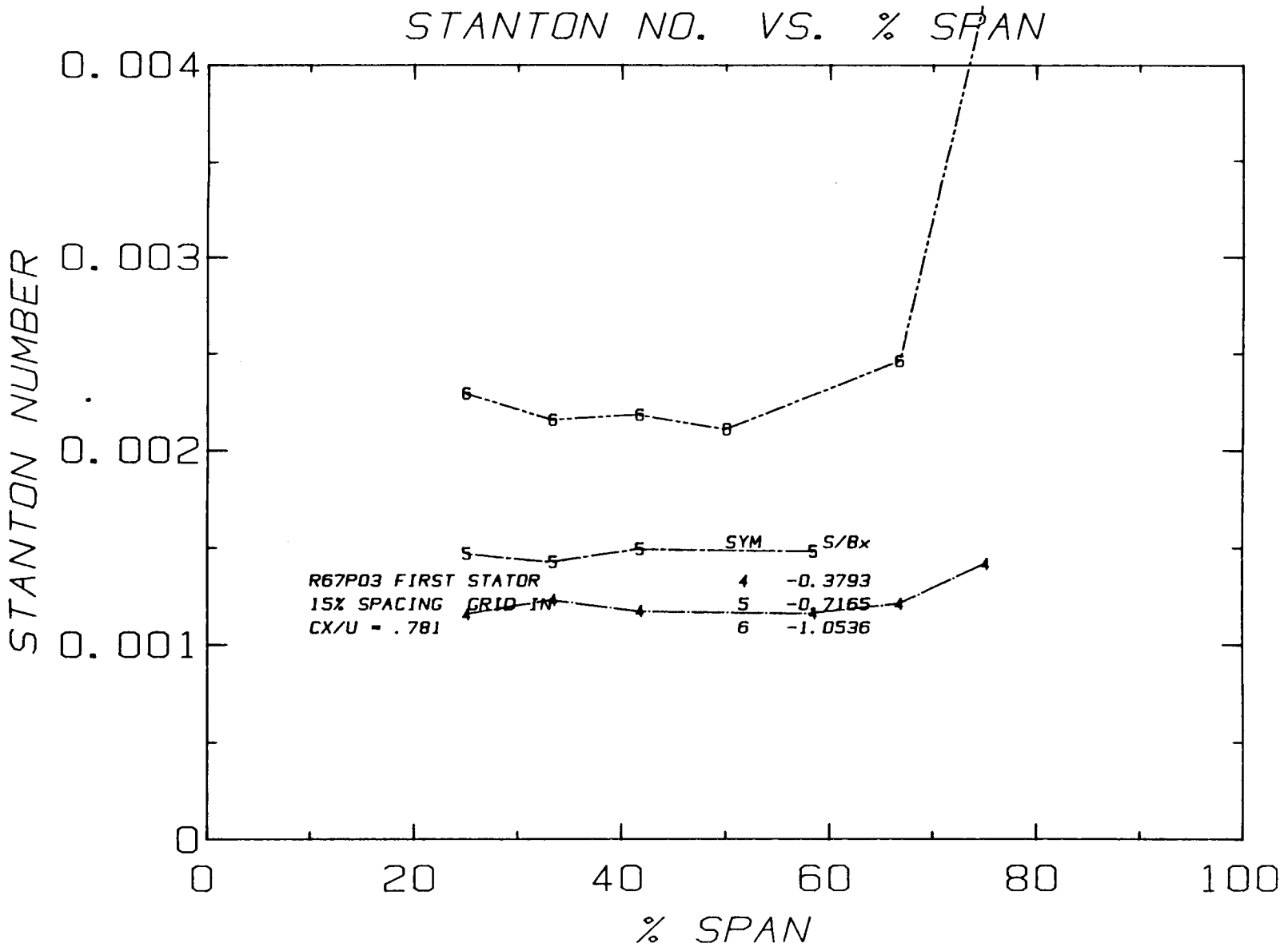
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.004436	2018.8	70.9	21.6
87	4.00	66.7	0.002482	1129.4	83.1	28.4
89	3.00	50.0	0.002116	962.8	87.8	31.0
90	2.50	41.7	0.002179	991.4	86.9	30.5
91	2.00	33.3	0.002092	952.0	88.2	31.2
92	1.50	25.0	0.002245	1021.5	86.0	30.0


STANTON NO. VS. S/Bx
R67P03 FIRST STATOR
15% SPACING GRID IN
CX/U = .781
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R67P03 FIRST STATOR
15% SPACING GRID IN
CX/U = .781
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN
R67P03 FIRST STATOR
15% SPACING GRID IN
CX/U = .781
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643


STANTON NO. VS. % SPAN
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN
R67P03 FIRST STATOR
15% SPACING GRID IN
CX/U = .781
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536

FIRST STATOR CX/U=.781 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 67 POINT: 3

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.6	205.7	0.0755	0.01467	0.2550	5.932
SI	12.5	62.7	1.2094	0.02537	2.8940	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002319	1048.3	83.8	28.8
2	10.50	1.770	0.002386	1078.7	83.4	28.5
3	10.00	1.686	0.002343	1059.2	83.9	28.8
4	9.50	1.601	0.002369	1071.2	83.6	28.7
5	9.00	1.517	0.002409	1089.2	83.2	28.5
6	8.50	1.433	0.002608	1179.1	81.2	27.3
7	8.00	1.349	0.002746	1241.6	79.9	26.6
11	7.50	1.264	0.002666	1205.5	80.7	27.0
15	7.00	1.180	999.000000	********	999.0	537.2
16	6.50	1.096	0.002855	1290.6	79.0	26.1
17	6.00	1.011	0.002885	1304.3	78.7	26.0
22	5.00	0.843	0.002832	1280.3	79.1	26.2
26	4.50	0.759	0.002851	1288.8	79.0	26.1
27	4.00	0.674	0.002871	1298.0	78.8	26.0
29	3.00	0.506	0.002659	1202.1	80.6	27.0
33	2.50	0.421	0.002538	1147.4	81.8	27.7
37	2.00	0.337	0.002321	1049.3	84.2	29.0
38	1.50	0.253	0.002280	1030.6	84.7	29.3
41	0.45	0.076	0.003062	1384.4	77.0	25.0
42	0.40	0.067	0.002904	1312.8	78.2	25.7
51	-0.05	-0.008	0.002907	1314.3	78.2	25.7
52	-0.10	-0.017	0.002731	1234.7	79.7	26.5
53	-0.15	-0.025	0.002452	1108.5	82.5	28.0
56	-0.30	-0.051	0.002151	972.2	86.2	30.1
57	-0.35	-0.059	0.001971	891.2	89.0	31.7
58	-0.40	-0.067	0.001939	876.6	89.5	32.0
45	0.25	0.042	0.003278	1481.7	75.6	24.2
46	0.20	0.034	0.003306	1494.7	75.4	24.1
47	0.15	0.025	0.003290	1487.5	75.5	24.2
49	0.05	0.008	0.003244	1466.7	75.8	24.3
50	0.00	0.000	0.003168	1432.4	76.3	24.6
54	-0.20	-0.034	0.002325	1051.2	83.9	28.9
55	-0.25	-0.042	0.002144	969.1	86.3	30.2
59	-0.45	-0.076	0.001832	828.3	91.5	33.0
62	-1.00	-0.169	0.001454	657.5	100.9	38.3
63	-1.25	-0.211	0.001379	623.3	103.3	39.6
65	-1.75	-0.295	0.001233	557.4	108.8	42.7
74	-3.25	-0.548	0.001290	583.2	106.3	41.3
75	-3.75	-0.632	0.001393	629.7	102.6	39.2
83	-4.75	-0.801	0.001597	721.8	96.6	35.9
89	-6.25	-1.054	0.002108	952.9	86.8	30.4
93	-6.75	-1.138	0.002289	1034.6	84.3	29.1

FIRST STATOR CX/U=.781 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 67 POINT: 3

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.6	205.7	0.0755	0.01467	0.2550	5.932
SI	12.5	62.7	1.2094	0.02537	2.8940	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002549	1152.2	81.7	27.6
31	4.00	66.7	0.002393	1081.8	83.4	28.6
32	3.50	58.3	0.002241	1013.3	85.3	29.6
33	3.00	50.0	0.002538	1147.4	81.8	27.7
34	2.50	41.7	0.002377	1074.6	83.6	28.7
35	2.00	33.3	0.002541	1149.0	81.7	27.6
36	1.50	25.0	0.003127	1413.6	76.8	24.9

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002800	1265.8	79.4	26.3
20	4.00	66.7	0.002675	1209.4	80.5	27.0
21	3.50	58.3	0.002724	1231.4	80.1	26.7
22	3.00	50.0	0.002832	1280.3	79.1	26.2
23	2.50	41.7	0.002819	1274.7	79.2	26.2
24	2.00	33.3	0.002867	1296.3	78.8	26.0
25	1.50	25.0	0.003147	1422.5	76.7	24.8

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003191	1442.8	76.5	24.7
9	4.00	66.7	0.002433	1099.8	83.1	28.4
11	3.00	50.0	0.002666	1205.5	80.7	27.0
12	2.50	41.7	0.002669	1206.6	80.6	27.0
13	2.00	33.3	0.002476	1119.5	82.6	28.1
14	1.50	25.0	0.002874	1299.4	78.8	26.0

S/BX = -0.37930

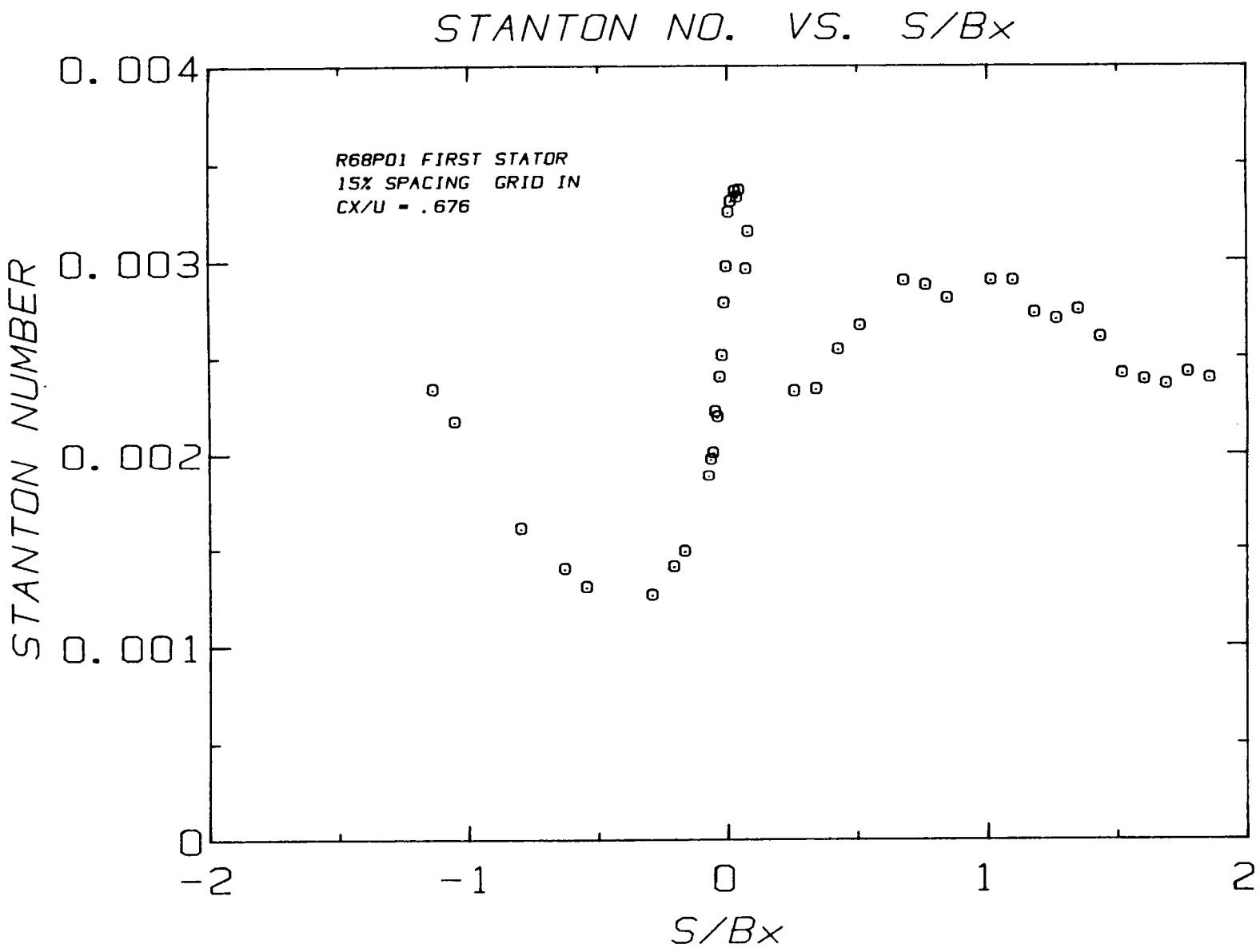
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001416	640.3	102.1	38.9
67	4.00	66.7	0.001210	546.9	109.7	43.2
68	3.50	58.3	0.001160	524.4	111.9	44.4
70	2.50	41.7	0.001173	530.1	111.4	44.1
71	2.00	33.3	0.001231	556.5	108.8	42.7
72	1.50	25.0	0.001155	522.3	112.1	44.5

S/BX = -0.71645

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001482	670.0	99.8	37.7
80	2.50	41.7	0.001494	675.6	99.5	37.5
81	2.00	33.3	0.001427	645.1	101.5	38.6
82	1.50	25.0	0.001471	664.9	100.1	37.9

S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.004363	1972.3	70.5	21.4
87	4.00	66.7	0.002459	1111.7	82.3	28.0
89	3.00	50.0	0.002108	952.9	86.8	30.4
90	2.50	41.7	0.002182	986.5	85.7	29.8
91	2.00	33.3	0.002156	974.7	86.1	30.0
92	1.50	25.0	0.002294	1036.9	84.3	29.0


STANTON NO. VS. S/Bx
R68P01 FIRST STATOR
15% SPACING GRID IN
CX/U = .676
STANTON NUMBER
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0.003
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0.001
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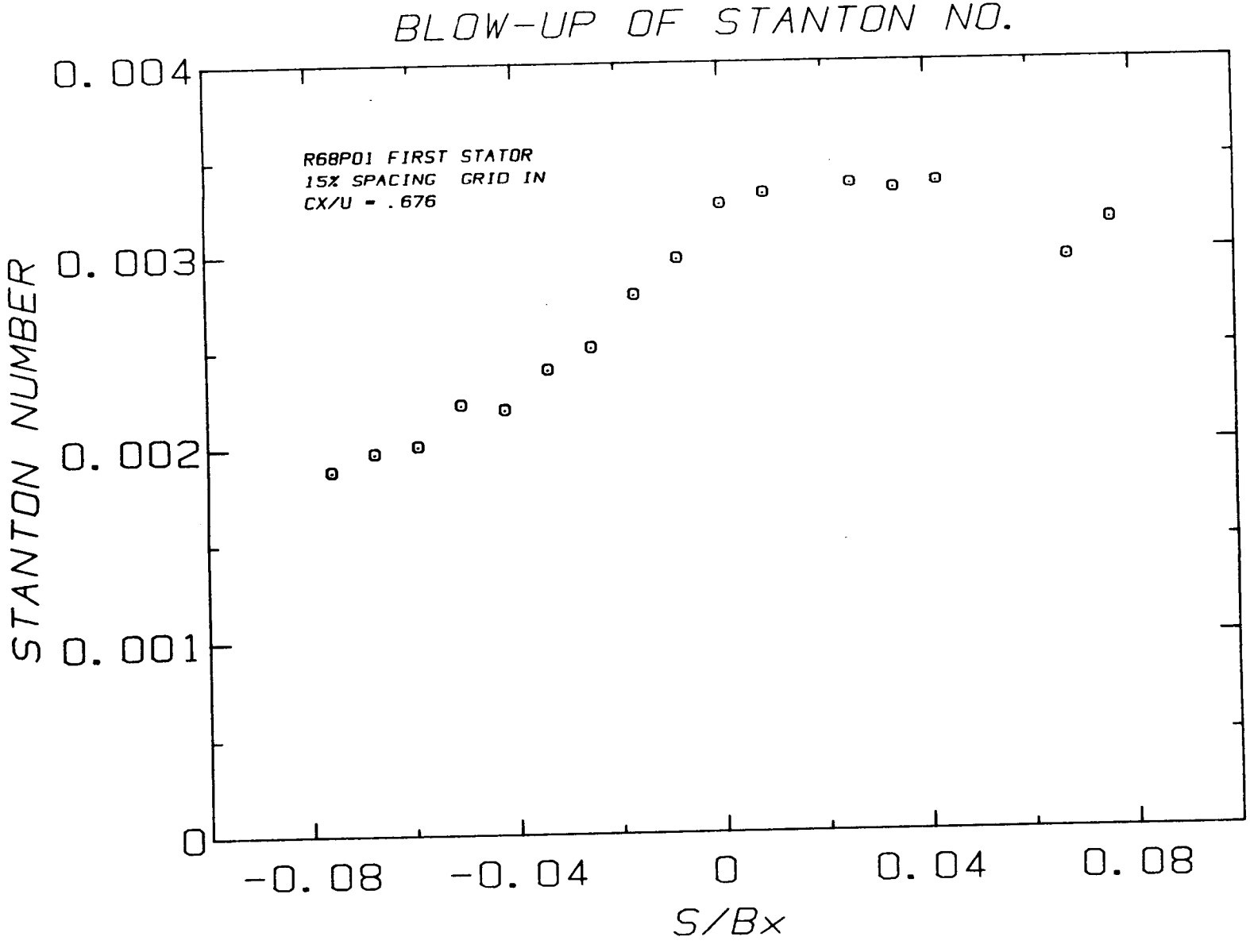
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R68P01 FIRST STATOR
15% SPACING GRID IN
CX/U = .676
STANTON NUMBER
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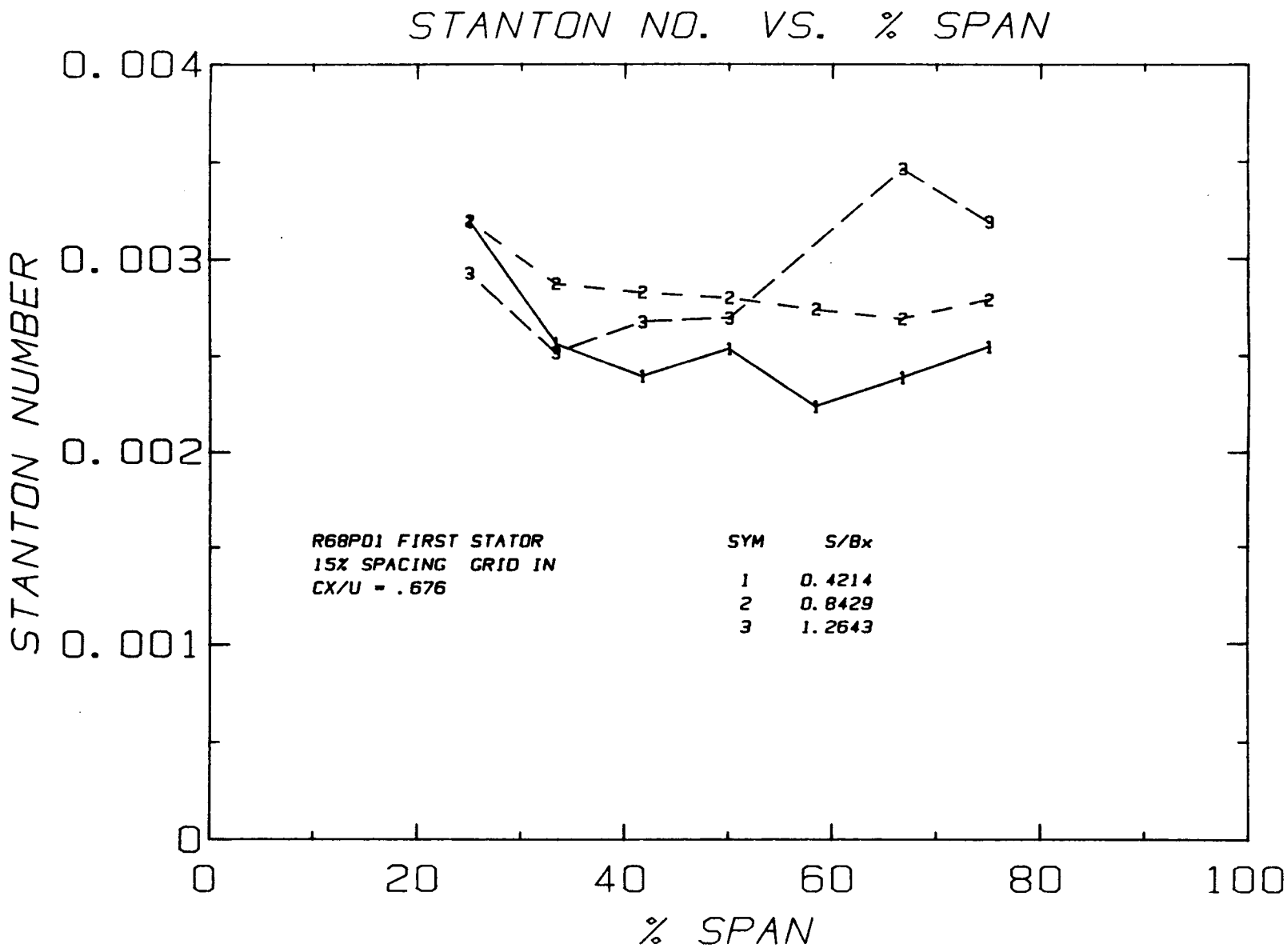
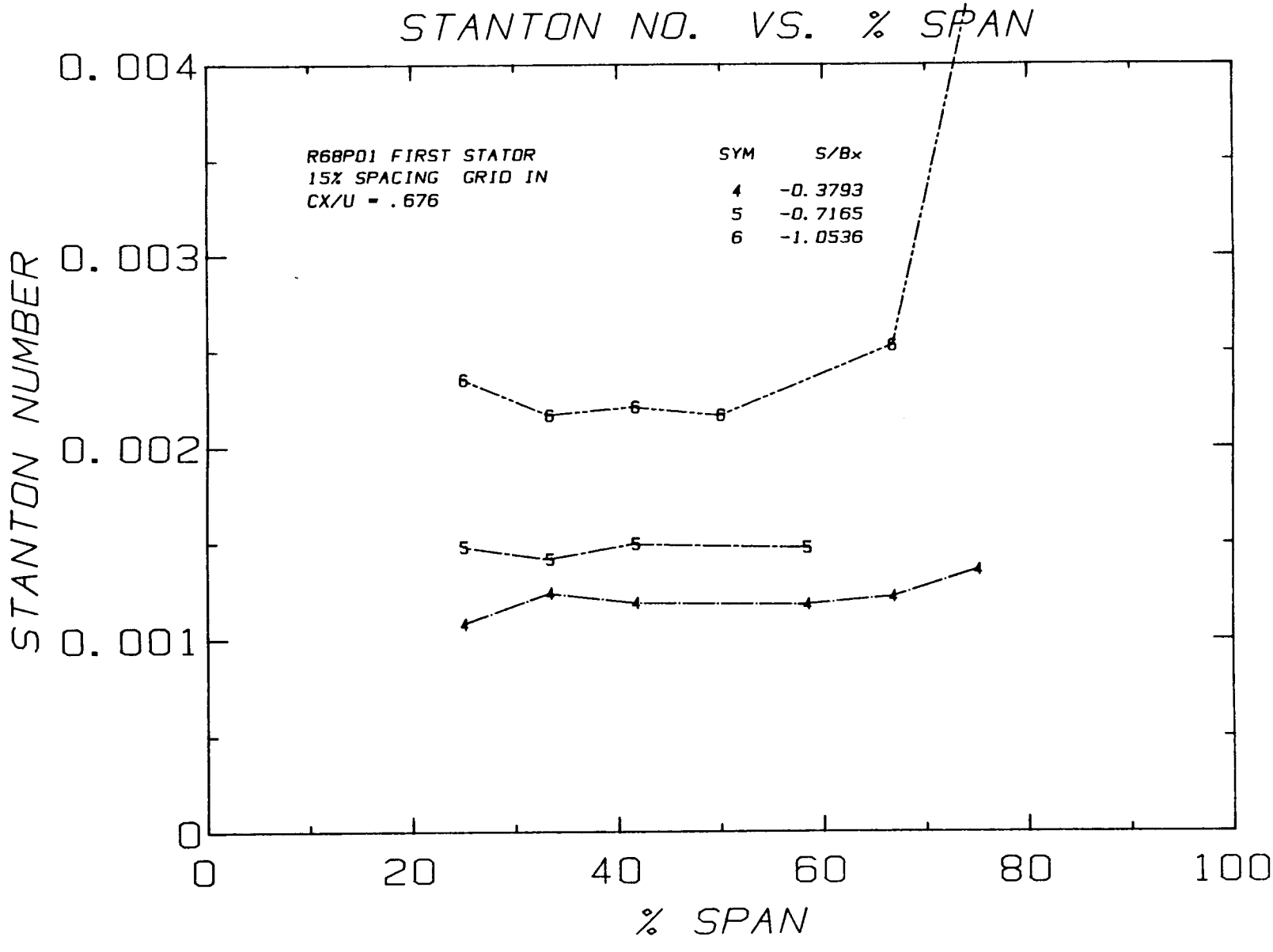
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN
R68P01 FIRST STATOR
15% SPACING GRID IN
CX/U = .676
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643


STANTON NO. VS. % SPAN
R68P01 FIRST STATOR
15% SPACING GRID IN
CX/U = .676
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.676 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 68 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.6	203.3	0.0748	0.01467	0.2560	5.932
SI	12.5	62.0	1.1983	0.02537	2.9053	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002382	1054.8	83.7	28.7
2	10.50	1.770	0.002414	1069.1	83.7	28.7
3	10.00	1.686	0.002351	1041.2	84.5	29.1
4	9.50	1.601	0.002376	1052.3	84.2	29.0
5	9.00	1.517	0.002409	1066.8	83.9	28.8
6	8.50	1.433	0.002599	1150.8	81.9	27.7
7	8.00	1.349	0.002742	1214.3	80.6	27.0
11	7.50	1.264	0.002694	1192.9	81.0	27.2
15	7.00	1.180	0.002726	1207.1	80.7	27.1
16	6.50	1.096	0.002893	1281.1	79.3	26.3
17	6.00	1.011	0.002894	1281.5	79.2	26.2
22	5.00	0.843	0.002800	1240.1	80.0	26.7
26	4.50	0.759	0.002867	1269.8	79.4	26.3
27	4.00	0.674	0.002891	1280.5	79.1	26.2
29	3.00	0.506	0.002660	1178.1	81.2	27.3
33	2.50	0.421	0.002536	1123.2	82.4	28.0
37	2.00	0.337	0.002332	1032.5	84.8	29.3
38	1.50	0.253	0.002321	1027.7	84.9	29.4
41	0.45	0.076	0.003146	1393.0	77.0	25.0
42	0.40	0.067	0.002954	1308.2	78.4	25.8
51	-0.05	-0.008	0.002965	1313.0	78.3	25.7
52	-0.10	-0.017	0.002779	1230.6	79.8	26.6
53	-0.15	-0.025	0.002505	1109.2	82.5	28.1
56	-0.30	-0.051	0.002215	980.7	86.1	30.0
57	-0.35	-0.059	0.002003	887.1	89.2	31.8
58	-0.40	-0.067	0.001967	871.2	89.8	32.1
45	0.25	0.042	0.003359	1487.5	75.6	24.2
46	0.20	0.034	0.003322	1471.0	75.8	24.3
47	0.15	0.025	0.003352	1484.5	75.6	24.2
49	0.05	0.008	0.003300	1461.4	75.9	24.4
50	0.00	0.000	0.003244	1436.5	76.3	24.6
54	-0.20	-0.034	0.002393	1059.7	83.8	28.8
55	-0.25	-0.042	0.002188	969.1	86.4	30.2
59	-0.45	-0.076	0.001875	830.2	91.5	33.1
62	-1.00	-0.169	0.001482	656.2	101.1	38.4
63	-1.25	-0.211	0.001402	621.1	103.6	39.8
65	-1.75	-0.295	0.001257	556.8	109.0	42.8
74	-3.25	-0.548	0.001298	574.8	107.2	41.8
75	-3.75	-0.632	0.001393	616.8	103.7	39.8
83	-4.75	-0.801	0.001602	709.2	97.5	36.4
89	-6.25	-1.054	0.002165	958.7	86.7	30.4
93	-6.75	-1.138	0.002334	1033.5	84.4	29.1

SPANWISE HEAT TRANSFER RUN: 68 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.6	203.3	0.0748	0.01467	0.2560	5.932
SI	12.5	62.0	1.1983	0.02537	2.9053	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002543	1126.3	82.4	28.0
31	4.00	66.7	0.002384	1055.9	84.2	29.0
32	3.50	58.3	0.002236	990.1	86.1	30.0
33	3.00	50.0	0.002536	1123.2	82.4	28.0
34	2.50	41.7	0.002394	1060.0	84.1	28.9
35	2.00	33.3	0.002563	1135.1	82.1	27.9
36	1.50	25.0	0.003191	1413.0	76.8	24.9

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002786	1233.8	80.1	26.7
20	4.00	66.7	0.002689	1190.6	81.0	27.2
21	3.50	58.3	0.002740	1213.5	80.5	27.0
22	3.00	50.0	0.002800	1240.1	80.0	26.7
23	2.50	41.7	0.002828	1252.3	79.7	26.5
24	2.00	33.3	0.002873	1272.2	79.4	26.3
25	1.50	25.0	0.003194	1414.6	76.9	25.0

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003188	1411.7	77.0	25.0
9	4.00	66.7	0.003461	1532.7	75.3	24.0
11	3.00	50.0	0.002694	1192.9	81.0	27.2
12	2.50	41.7	0.002674	1184.3	81.2	27.3
13	2.00	33.3	0.002514	1113.4	82.8	28.2
14	1.50	25.0	0.002927	1296.0	79.0	26.1

S/BX = -0.37930

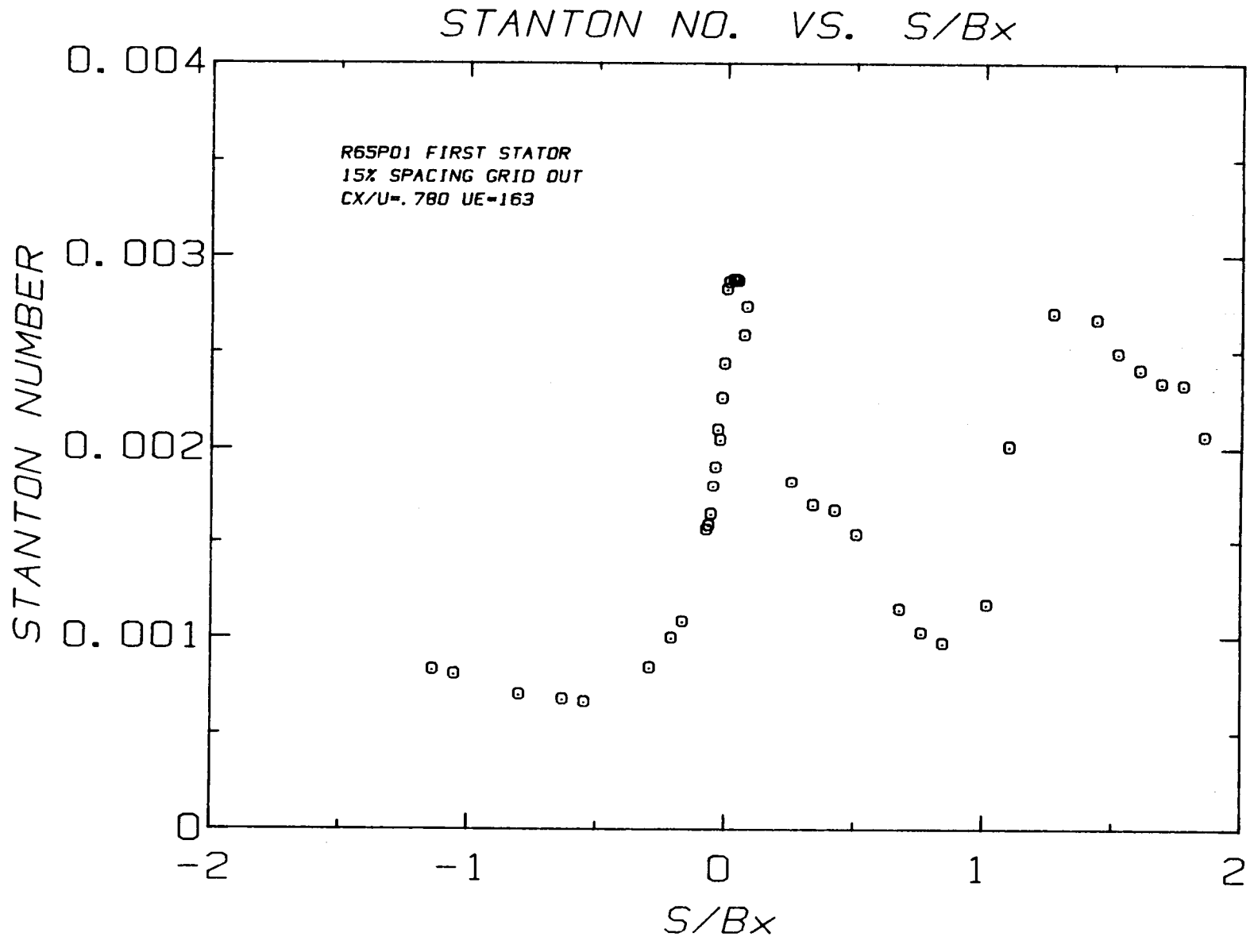
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001359	601.8	105.1	40.6
67	4.00	66.7	0.001218	539.4	110.6	43.7
68	3.50	58.3	0.001177	521.4	112.4	44.7
70	2.50	41.7	0.001187	525.7	112.0	44.4
71	2.00	33.3	0.001238	548.2	109.8	43.2
72	1.50	25.0	0.001078	477.4	117.4	47.4

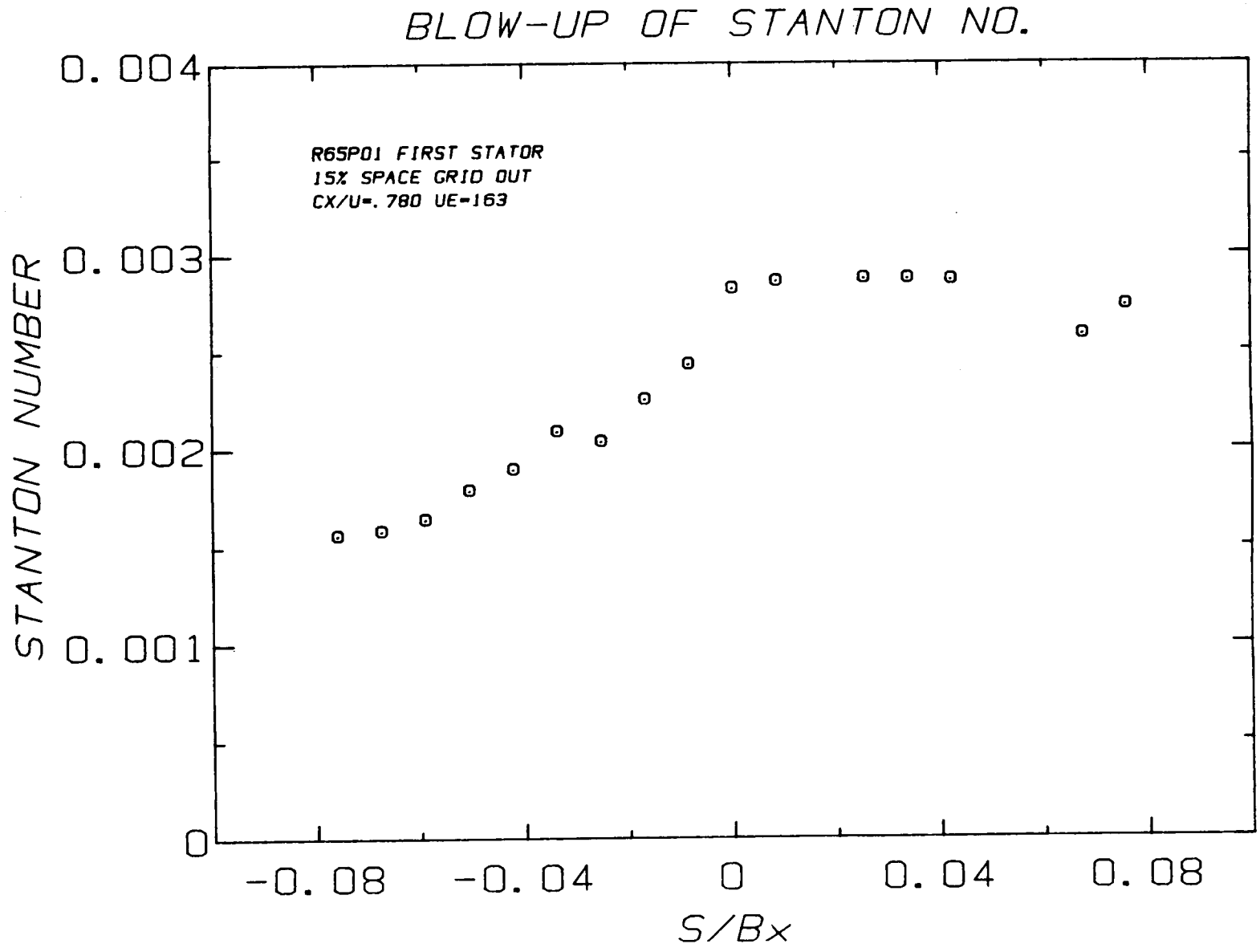
S/BX = -0.71645

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001476	653.5	101.0	38.3
80	2.50	41.7	0.001495	661.9	100.5	38.0
81	2.00	33.3	0.001415	626.5	102.9	39.4
82	1.50	25.0	0.001480	655.3	100.9	38.3

S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.004531	2006.4	70.2	21.2
87	4.00	66.7	0.002528	1119.3	82.2	27.9
89	3.00	50.0	0.002165	958.7	86.7	30.4
90	2.50	41.7	0.002208	977.9	86.0	30.0
91	2.00	33.3	0.002165	958.5	86.7	30.4
92	1.50	25.0	0.002350	1040.7	84.2	29.0


STANTON NO. VS. S/Bx
R65P01 FIRST STATOR
15% SPACING GRID OUT
CX/U=.780 UE=163
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R65P01 FIRST STATOR
15% SPACE GRID OUT
CX/U=.780 UE=163
STANTON NUMBER
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0.003
0.002
0.001
0
-0.08
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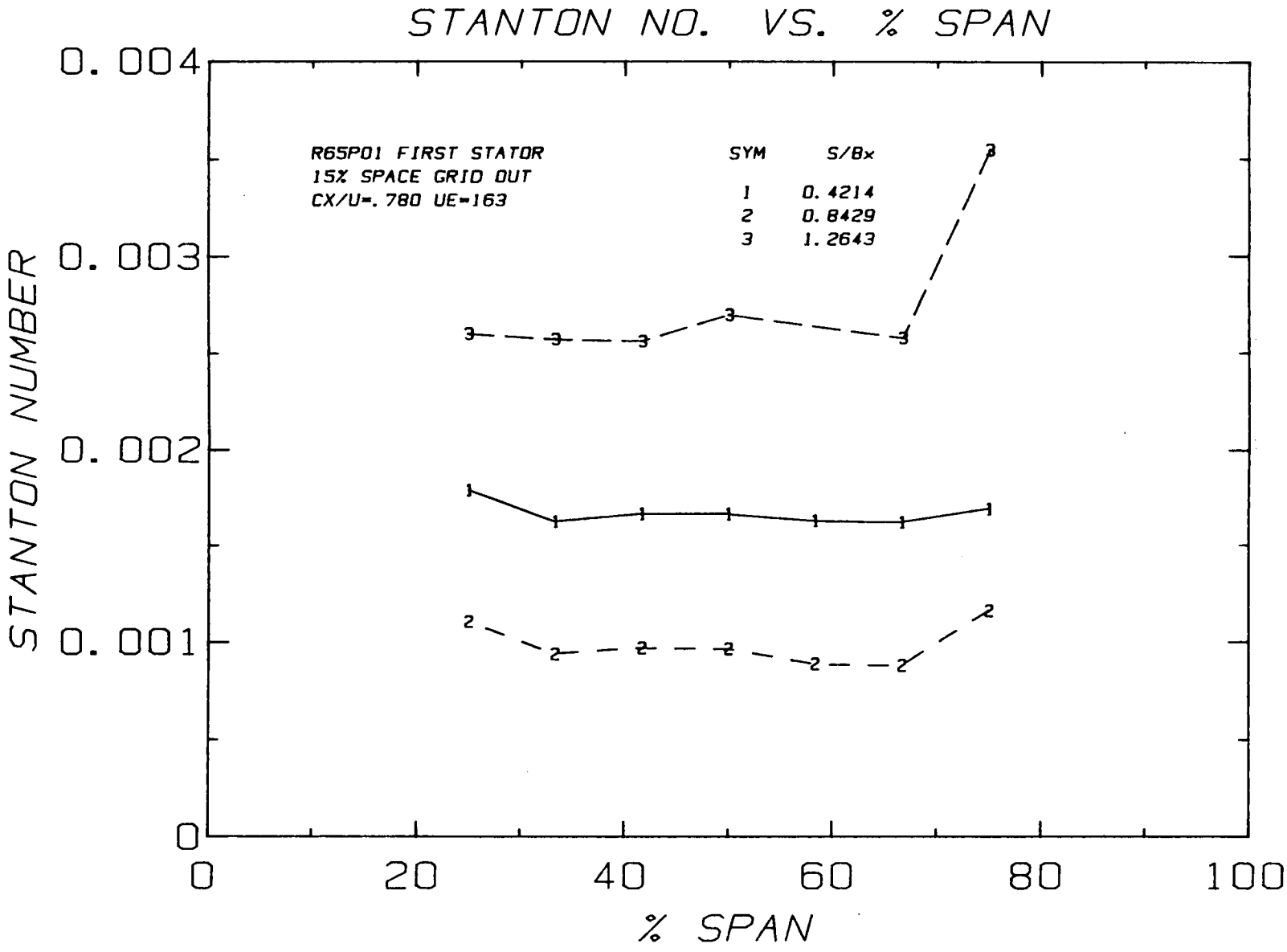
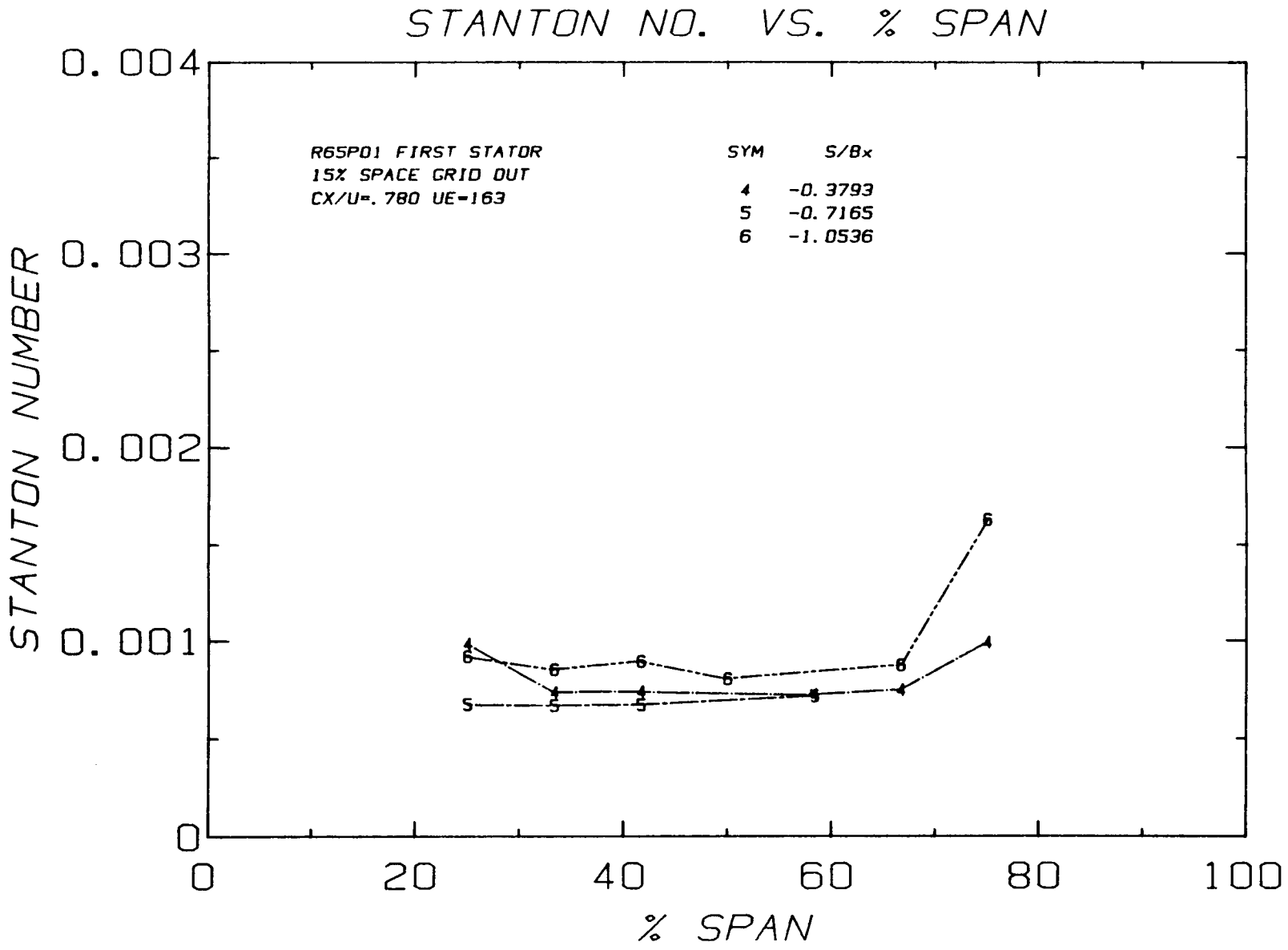
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R65P01 FIRST STATOR
15% SPACE GRID OUT
CX/U=.780 UE=163
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R65P01 FIRST STATOR
15% SPACE GRID OUT
CX/U=.780 UE=163
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.780 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 65 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.3	163.5	0.0768	0.01464	0.0970	5.932
SI	11.8	49.8	1.2297	0.02532	1.1009	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002055	752.6	69.6	20.9
2	10.50	1.770	0.002322	850.3	68.1	20.0
3	10.00	1.686	0.002332	854.3	67.9	20.0
4	9.50	1.601	0.002402	879.8	67.4	19.7
5	9.00	1.517	0.002488	911.2	67.0	19.4
6	8.50	1.433	0.002664	975.7	66.2	19.0
11	7.50	1.264	0.002696	987.6	66.0	18.9
16	6.50	1.096	0.002004	733.8	70.1	21.2
17	6.00	1.011	0.001168	427.7	81.0	27.2
22	5.00	0.843	0.000964	352.9	86.1	30.1
26	4.50	0.759	0.001020	373.6	84.4	29.1
27	4.00	0.674	0.001146	419.6	81.2	27.4
29	3.00	0.506	0.001533	561.4	74.5	23.6
33	2.50	0.421	0.001658	607.1	73.0	22.8
37	2.00	0.337	0.001686	617.4	72.6	22.6
38	1.50	0.253	0.001810	663.0	71.4	21.9
41	0.45	0.076	0.002728	999.3	65.4	18.5
42	0.40	0.067	0.002579	944.4	66.0	18.9
51	-0.05	-0.008	0.002430	890.0	66.8	19.3
52	-0.10	-0.017	0.002251	824.3	67.8	19.9
53	-0.15	-0.025	0.002035	745.2	69.3	20.7
56	-0.30	-0.051	0.001785	653.6	71.4	21.9
57	-0.35	-0.059	0.001636	599.3	72.9	22.7
58	-0.40	-0.067	0.001579	578.2	73.6	23.1
45	0.25	0.042	0.002863	1048.8	64.8	18.2
46	0.20	0.034	0.002870	1051.0	64.8	18.2
47	0.15	0.025	0.002870	1051.3	64.8	18.2
49	0.05	0.008	0.002857	1046.5	64.8	18.2
50	0.00	0.000	0.002820	1032.7	65.0	18.3
54	-0.20	-0.034	0.002088	764.7	68.9	20.5
55	-0.25	-0.042	0.001892	692.9	70.4	21.3
59	-0.45	-0.076	0.001556	569.9	73.8	23.2
62	-1.00	-0.169	0.001078	394.7	82.2	27.9
63	-1.25	-0.211	0.000990	362.7	84.6	29.2
65	-1.75	-0.295	0.000835	305.7	89.8	32.1
74	-3.25	-0.548	0.000656	240.1	98.0	36.7
75	-3.75	-0.632	0.000669	245.2	97.1	36.1
83	-4.75	-0.801	0.000695	254.5	95.3	35.2
89	-6.25	-1.054	0.000803	294.1	90.2	32.3
93	-6.75	-1.138	0.000826	302.5	89.3	31.8

FIRST STATOR CX/U=.780 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 65 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.3	163.5	0.0768	0.01464	0.0970	5.932
SI	11.8	49.8	1.2297	0.02532	1.1009	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.001683	616.3	72.7	22.6
31	4.00	66.7	0.001615	591.7	73.5	23.0
32	3.50	58.3	0.001624	594.6	73.4	23.0
33	3.00	50.0	0.001658	607.1	73.0	22.8
34	2.50	41.7	0.001659	607.6	73.0	22.8
35	2.00	33.3	0.001618	592.8	73.4	23.0
36	1.50	25.0	0.001781	652.2	71.7	22.0

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.001162	425.4	81.0	27.2
20	4.00	66.7	0.000878	321.6	89.0	31.6
21	3.50	58.3	0.000887	324.8	88.7	31.5
22	3.00	50.0	0.000964	352.9	86.1	30.1
23	2.50	41.7	0.000969	354.9	86.0	30.0
24	2.00	33.3	0.000937	343.2	87.0	30.5
25	1.50	25.0	0.001106	405.0	82.3	27.9

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003547	1299.2	63.0	17.2
9	4.00	66.7	0.002576	943.4	66.6	19.2
11	3.00	50.0	0.002696	987.6	66.0	18.9
12	2.50	41.7	0.002559	937.3	66.6	19.2
13	2.00	33.3	0.002570	941.2	66.6	19.2
14	1.50	25.0	0.002600	952.1	66.4	19.1

S/BX = -0.37930

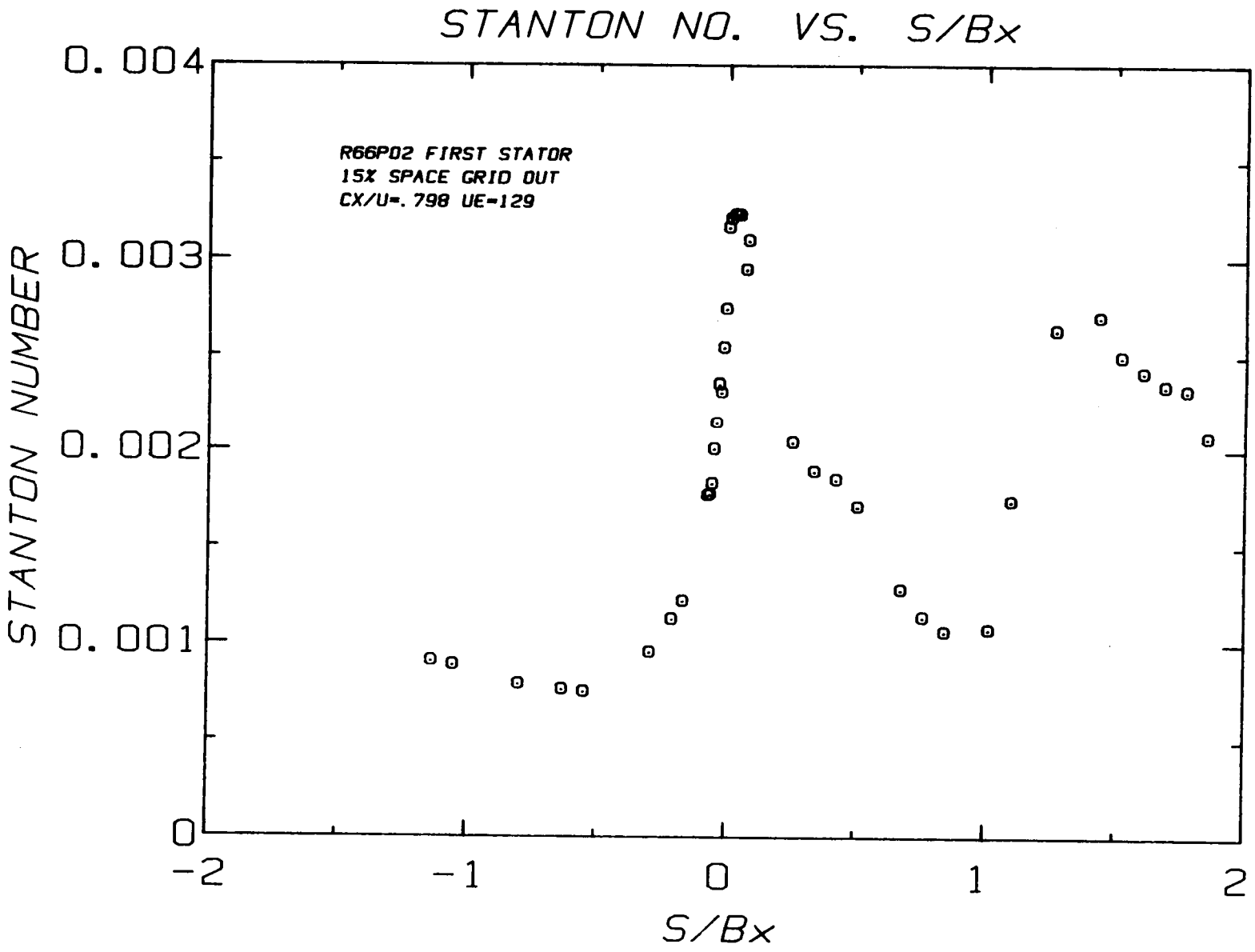
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.000990	362.4	84.6	29.2
67	4.00	66.7	0.000746	273.4	93.5	34.2
68	3.50	58.3	0.000721	264.0	94.7	34.9
70	2.50	41.7	0.000737	270.1	93.9	34.4
71	2.00	33.3	0.000734	268.7	94.1	34.5
72	1.50	25.0	0.000984	360.3	84.7	29.3

S/BX = -0.71645

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.000714	261.5	94.6	34.8
80	2.50	41.7	0.000670	245.3	96.9	36.0
81	2.00	33.3	0.000666	243.8	97.1	36.2
82	1.50	25.0	0.000673	246.3	96.7	36.0

S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.001627	596.1	72.9	22.7
87	4.00	66.7	0.000873	319.8	87.6	30.9
89	3.00	50.0	0.000803	294.1	90.2	32.3
90	2.50	41.7	0.000893	327.0	87.0	30.5
91	2.00	33.3	0.000850	311.5	88.4	31.3
92	1.50	25.0	0.000918	336.3	86.2	30.1


STANTON NO. VS. S/Bx
R66P02 FIRST STATOR
15% SPACE GRID OUT
CX/U=.798 UE=129
STANTON NUMBER
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0.003
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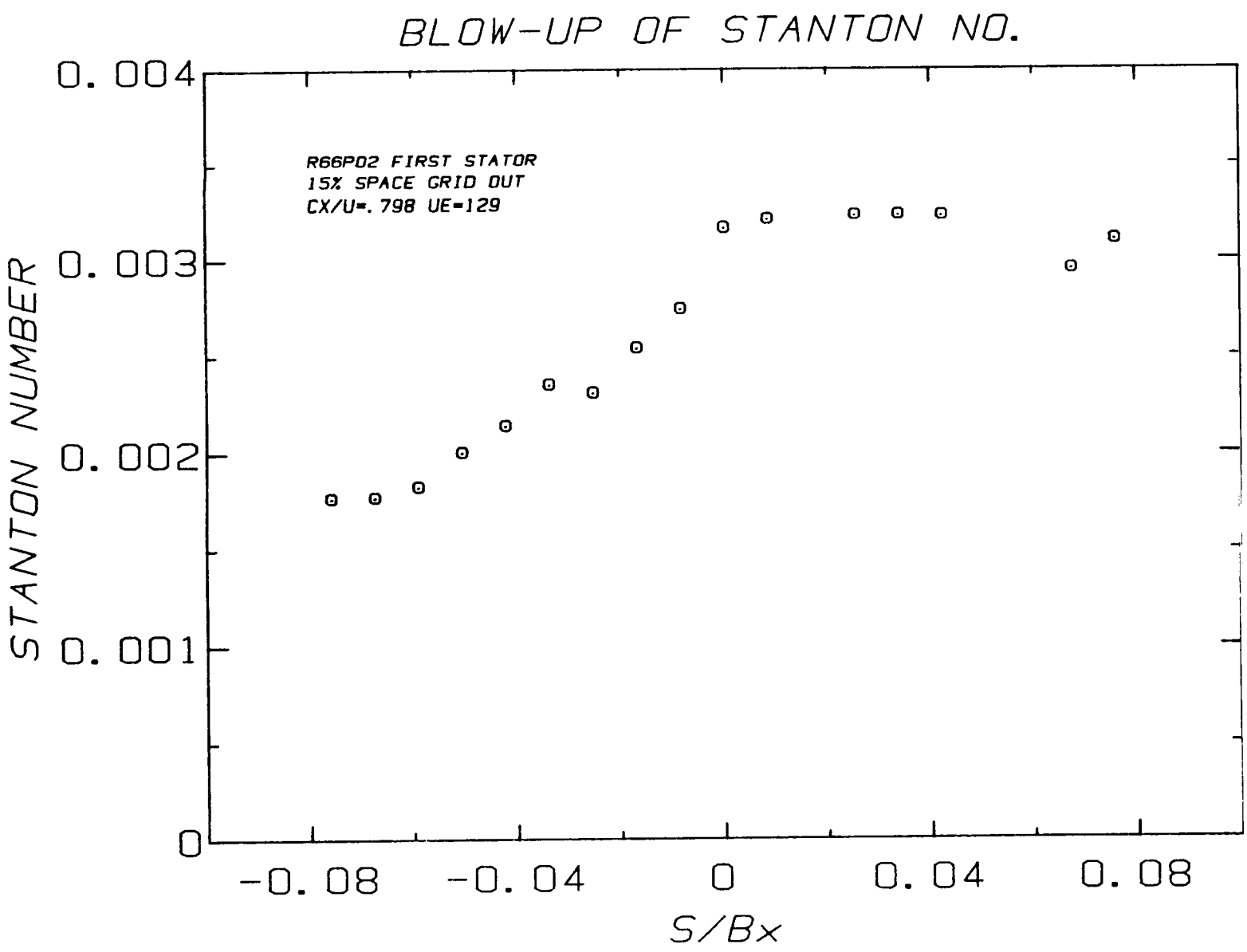
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R66P02 FIRST STATOR
15% SPACE GRID OUT
CX/U=.798 UE=129
STANTON NUMBER
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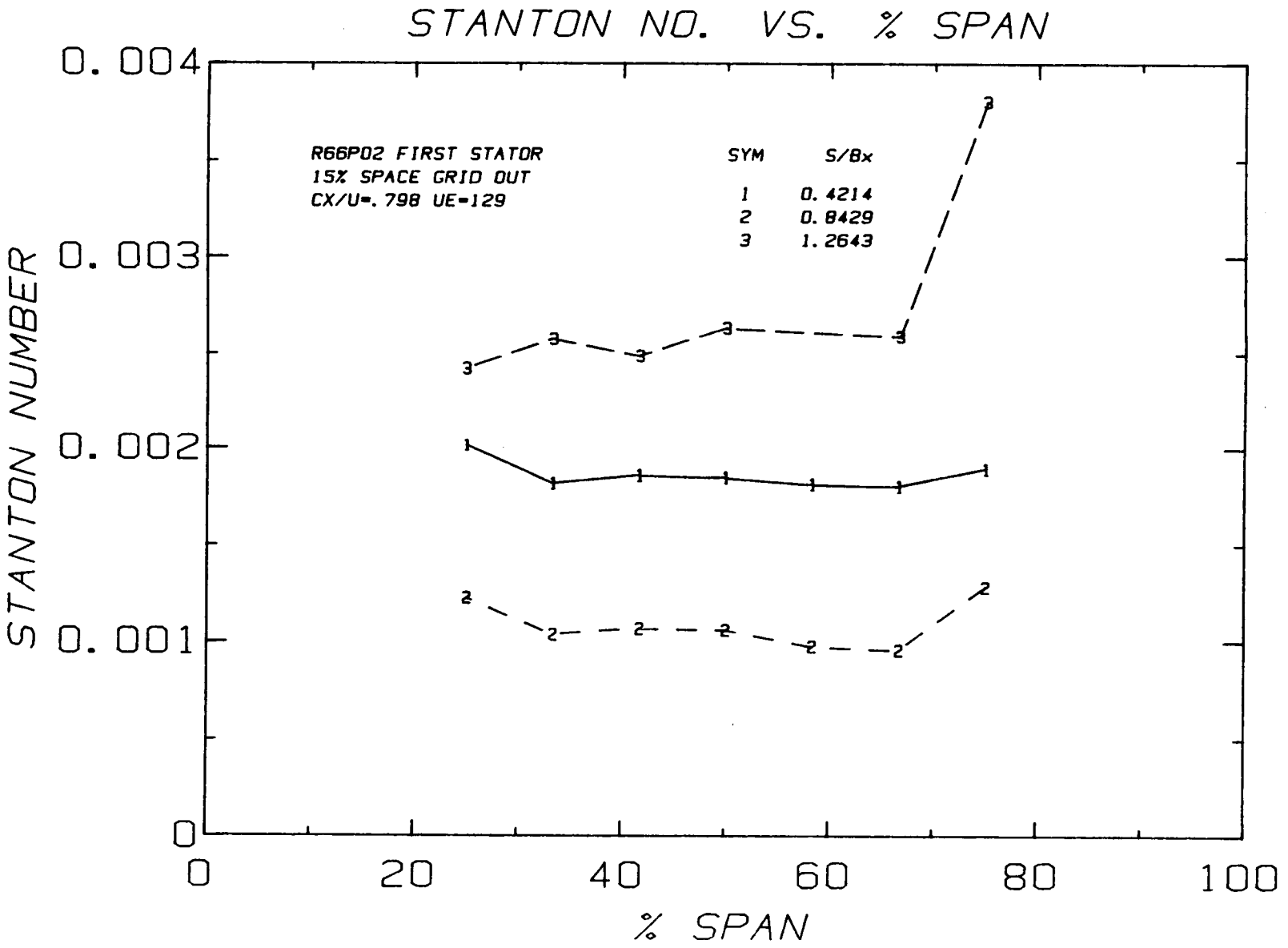
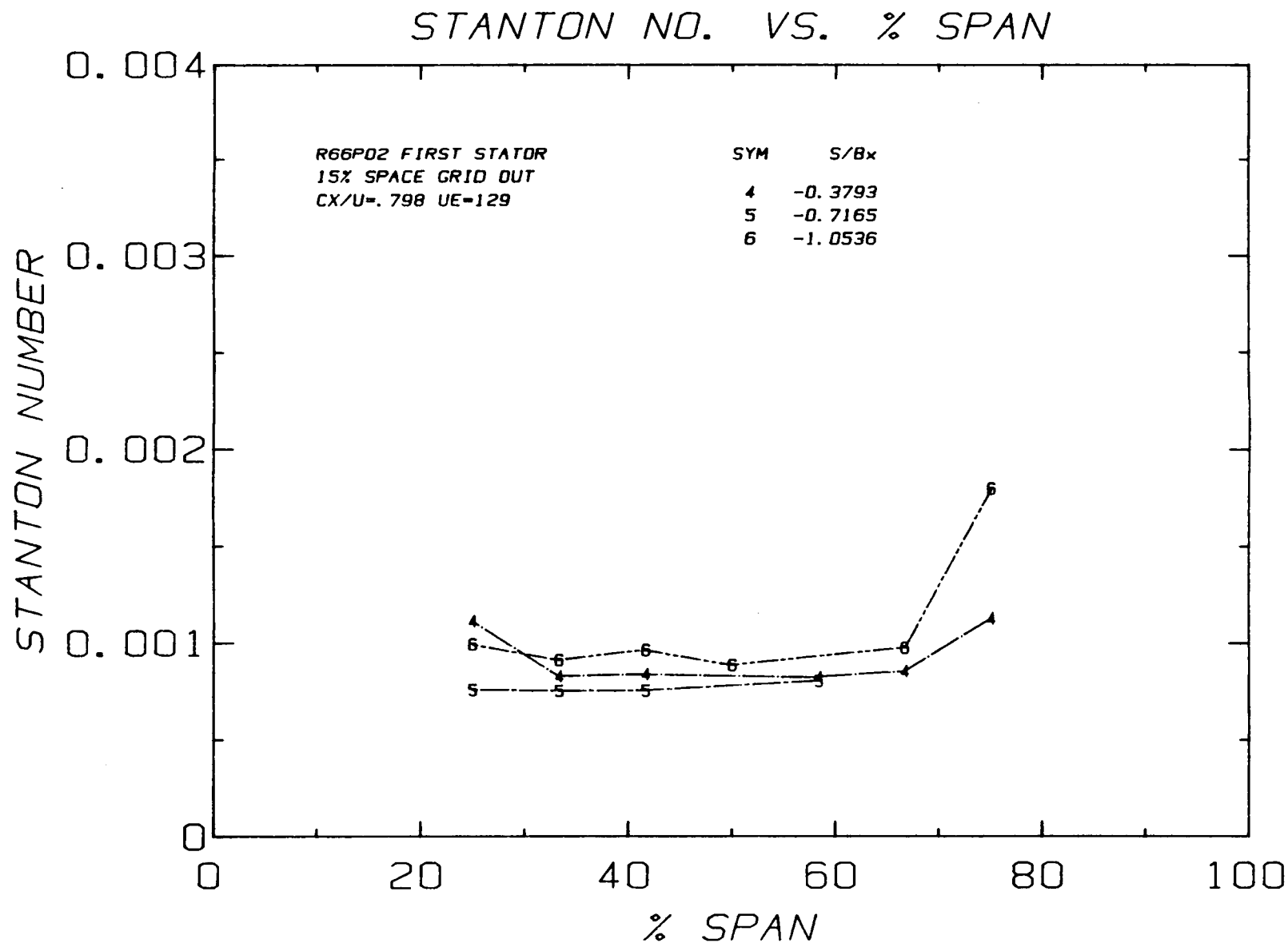
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R66P02 FIRST STATOR
15% SPACE GRID OUT
CX/U=.798 UE=129
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R66P02 FIRST STATOR
15% SPACE GRID OUT
CX/U=.798 UE=129
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.798 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 66 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.2	128.5	0.0771	0.01468	0.0970	5.932
SI	12.4	39.2	1.2353	0.02539	1.1009	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002065	595.3	74.2	23.5
2	10.50	1.770	0.002324	670.0	72.5	22.5
3	10.00	1.686	0.002346	676.3	72.3	22.4
4	9.50	1.601	0.002414	695.9	71.7	22.1
5	9.00	1.517	0.002496	719.6	71.3	21.8
6	8.50	1.433	0.002701	778.8	70.1	21.2
11	7.50	1.264	0.002631	758.7	70.5	21.4
16	6.50	1.096	0.001736	500.4	78.2	25.7
17	6.00	1.011	0.001072	309.1	91.1	32.8
22	5.00	0.843	0.001059	305.3	91.4	33.0
26	4.50	0.759	0.001135	327.3	89.1	31.7
27	4.00	0.674	0.001279	368.7	85.5	29.7
29	3.00	0.506	0.001706	491.9	78.1	25.6
33	2.50	0.421	0.001846	532.1	76.4	24.7
37	2.00	0.337	0.001887	544.2	75.9	24.4
38	1.50	0.253	0.002037	587.2	74.4	23.6
41	0.45	0.076	0.003092	891.6	67.6	19.8
42	0.40	0.067	0.002941	848.1	68.3	20.2
51	-0.05	-0.008	0.002739	789.6	69.3	20.7
52	-0.10	-0.017	0.002537	731.6	70.4	21.3
53	-0.15	-0.025	0.002306	664.9	71.9	22.2
56	-0.30	-0.051	0.002000	576.7	74.5	23.6
57	-0.35	-0.059	0.001822	525.3	76.3	24.6
58	-0.40	-0.067	0.001767	509.5	76.9	24.9
45	0.25	0.042	0.003222	928.9	67.1	19.5
46	0.20	0.034	0.003225	929.8	67.1	19.5
47	0.15	0.025	0.003223	929.3	67.1	19.5
49	0.05	0.008	0.003203	923.5	67.2	19.6
50	0.00	0.000	0.003158	910.6	67.4	19.7
54	-0.20	-0.034	0.002349	677.3	71.6	22.0
55	-0.25	-0.042	0.002137	616.1	73.2	22.9
59	-0.45	-0.076	0.001762	507.9	77.0	25.0
62	-1.00	-0.169	0.001215	350.3	86.3	30.2
63	-1.25	-0.211	0.001121	323.3	88.8	31.5
65	-1.75	-0.295	0.000949	273.7	94.2	34.6
74	-3.25	-0.548	0.000745	214.7	103.1	39.5
75	-3.75	-0.632	0.000757	218.2	102.2	39.0
83	-4.75	-0.801	0.000784	226.1	100.3	38.0
89	-6.25	-1.054	0.000884	254.9	95.6	35.3
93	-6.75	-1.138	0.000905	260.8	94.8	34.9

FIRST STATOR CX/U=.798 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 66 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.2	128.5	0.0771	0.01468	0.0970	5.932
SI	12.4	39.2	1.2353	0.02539	1.1009	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.001889	544.6	75.9	24.4
31	4.00	66.7	0.001801	519.2	76.9	25.0
32	3.50	58.3	0.001812	522.5	76.8	24.9
33	3.00	50.0	0.001846	532.1	76.4	24.7
34	2.50	41.7	0.001857	535.4	76.3	24.6
35	2.00	33.3	0.001815	523.4	76.8	24.9
36	1.50	25.0	0.002013	580.5	74.7	23.7

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.001281	369.3	85.6	29.8
20	4.00	66.7	0.000957	276.0	94.8	34.9
21	3.50	58.3	0.000976	281.4	94.1	34.5
22	3.00	50.0	0.001059	305.3	91.4	33.0
23	2.50	41.7	0.001067	307.6	91.1	32.9
24	2.00	33.3	0.001035	298.4	92.2	33.4
25	1.50	25.0	0.001226	353.5	86.9	30.5

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003803	1096.4	65.7	18.7
9	4.00	66.7	0.002587	745.9	70.7	21.5
11	3.00	50.0	0.002631	758.7	70.5	21.4
12	2.50	41.7	0.002486	716.7	71.4	21.9
13	2.00	33.3	0.002574	742.1	70.8	21.6
14	1.50	25.0	0.002419	697.5	71.8	22.1

S/BX = -0.37930

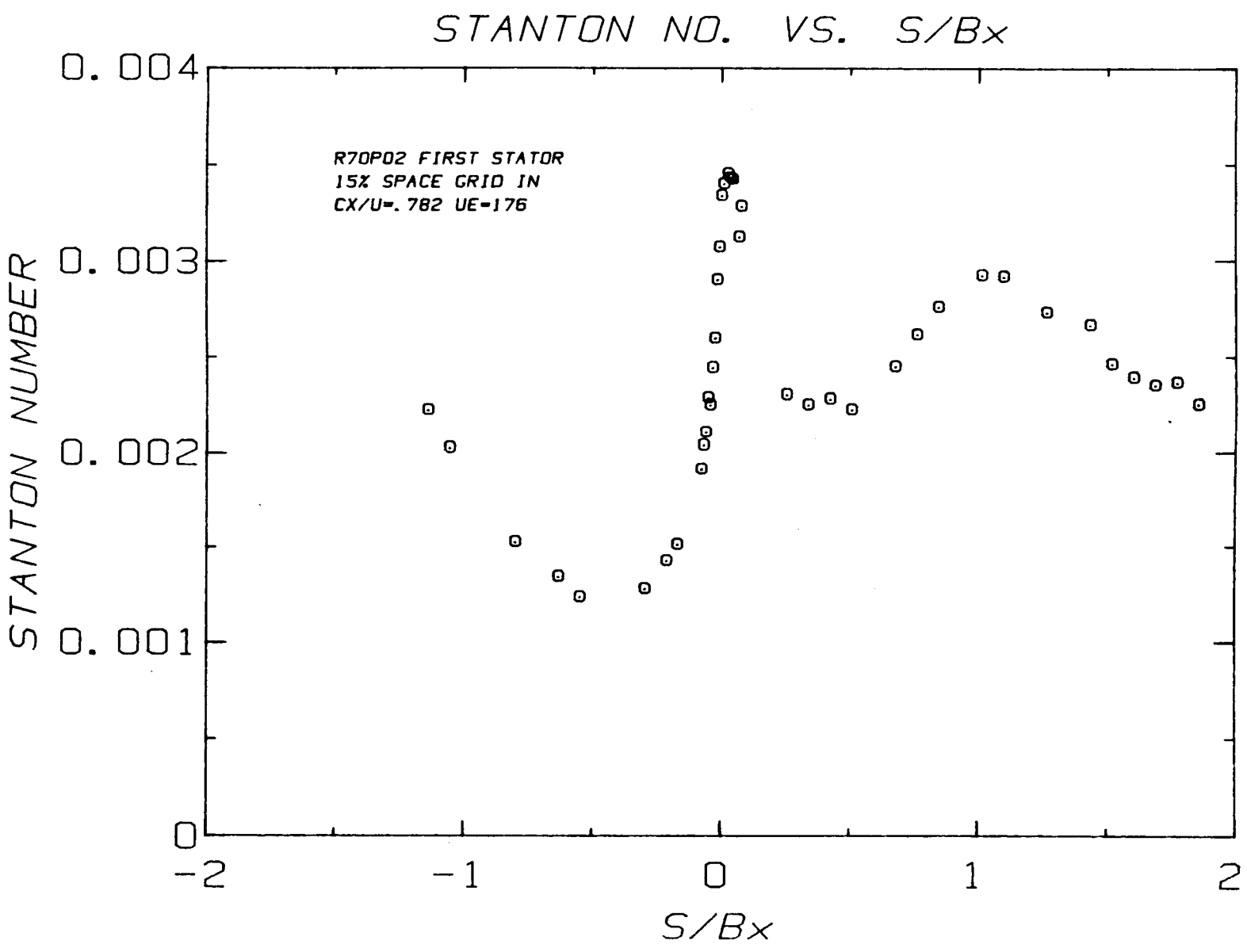
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001125	324.4	88.6	31.5
67	4.00	66.7	0.000852	245.8	98.1	36.7
68	3.50	58.3	0.000822	237.1	99.4	37.5
70	2.50	41.7	0.000837	241.4	98.8	37.1
71	2.00	33.3	0.000827	238.4	99.2	37.4
72	1.50	25.0	0.001113	320.9	89.0	31.6

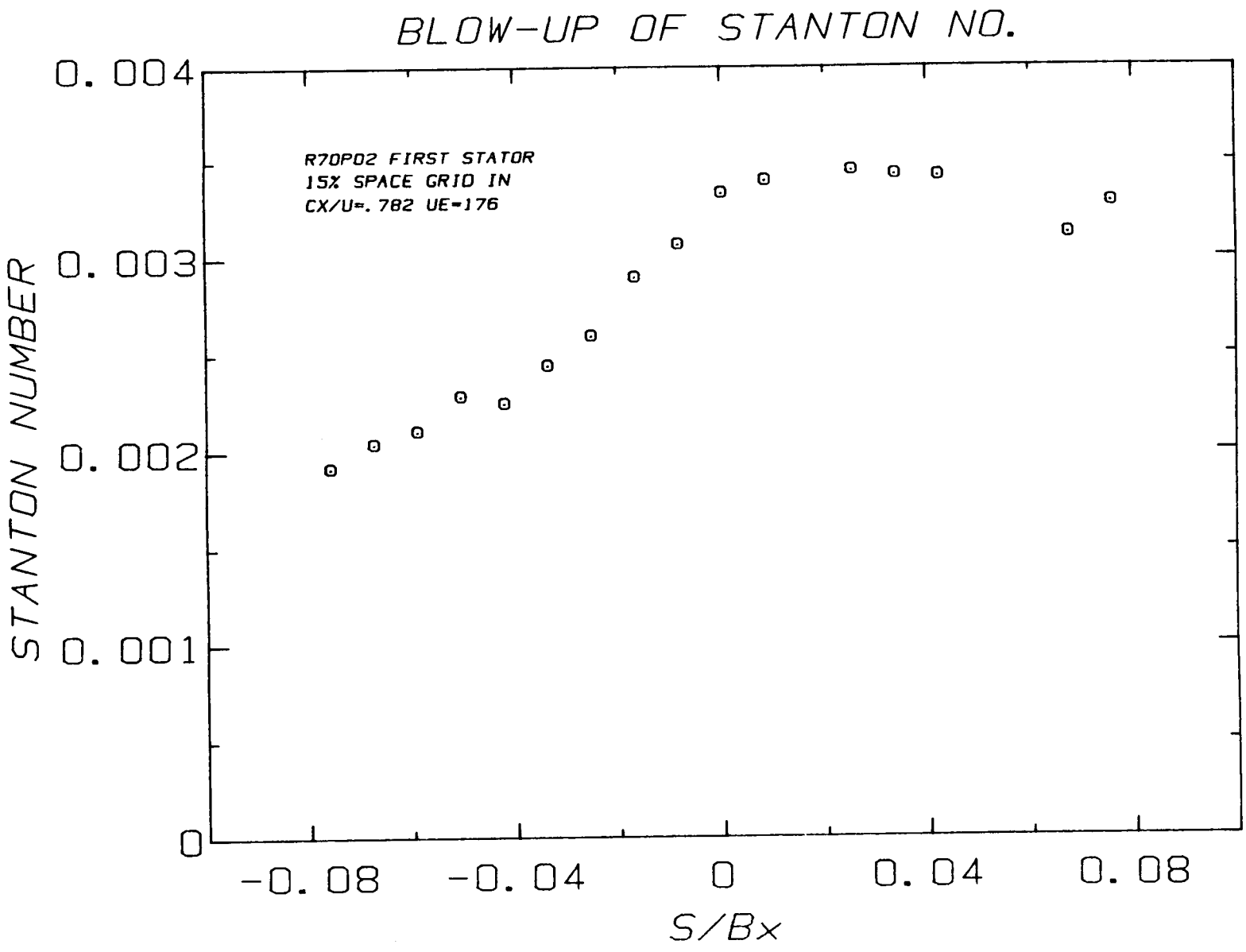
S/BX = -0.71645

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.000801	230.9	99.8	37.7
80	2.50	41.7	0.000750	216.3	102.3	39.1
81	2.00	33.3	0.000750	216.1	102.4	39.1
82	1.50	25.0	0.000755	217.8	102.1	38.9

S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.001797	518.1	76.5	24.7
87	4.00	66.7	0.000974	280.8	92.4	33.5
89	3.00	50.0	0.000884	254.9	95.6	35.3
90	2.50	41.7	0.000962	277.5	92.8	33.8
91	2.00	33.3	0.000910	262.4	94.6	34.8
92	1.50	25.0	0.000992	286.1	91.8	33.2


STANTON NO. VS. S/Bx
R70P02 FIRST STATOR
15% SPACE GRID IN
CX/U=.782 UE=176
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P02 FIRST STATOR
15% SPACE GRID IN
CX/U=.782 UE=176
STANTON NUMBER
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0.002
0.001
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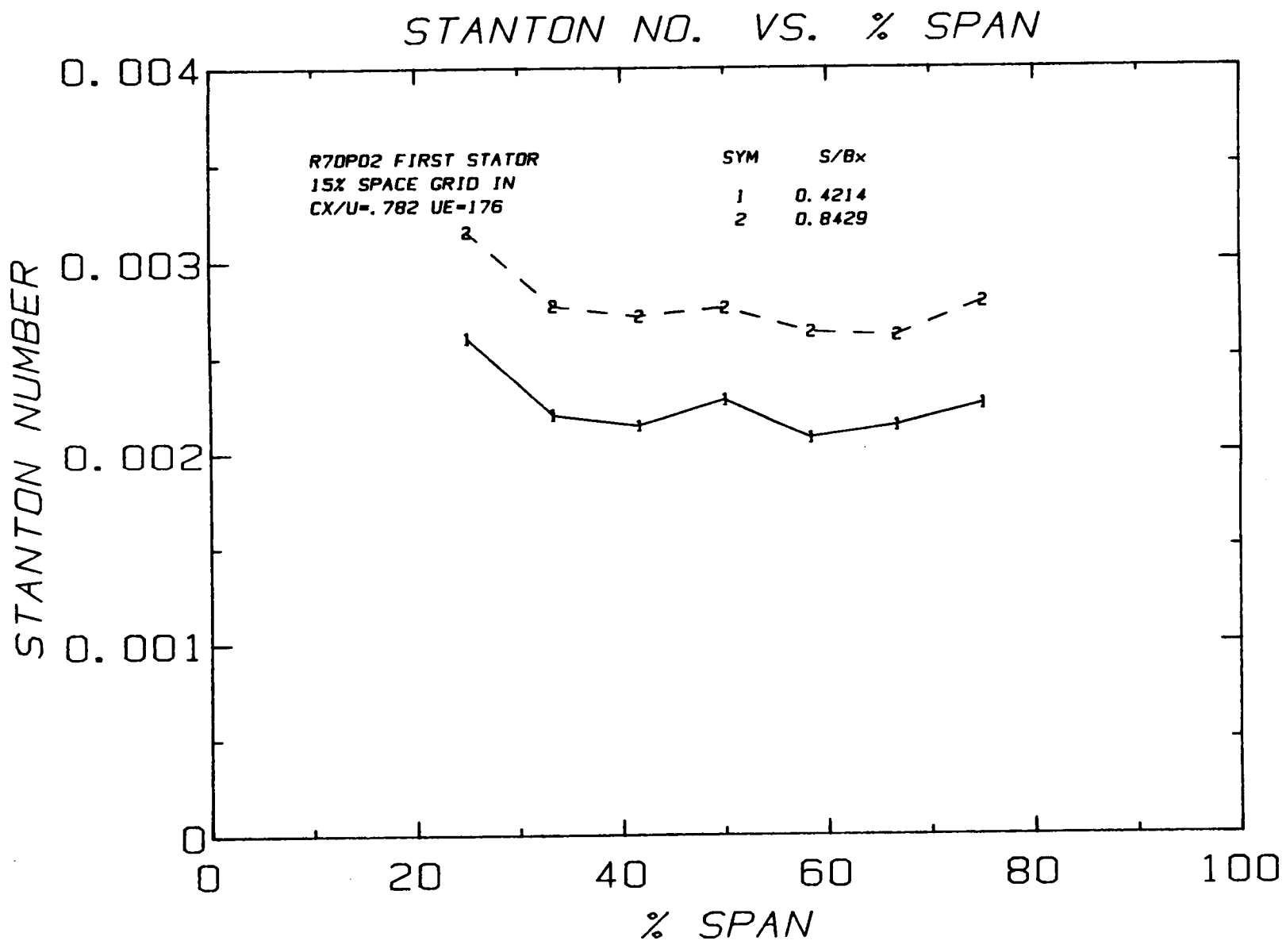
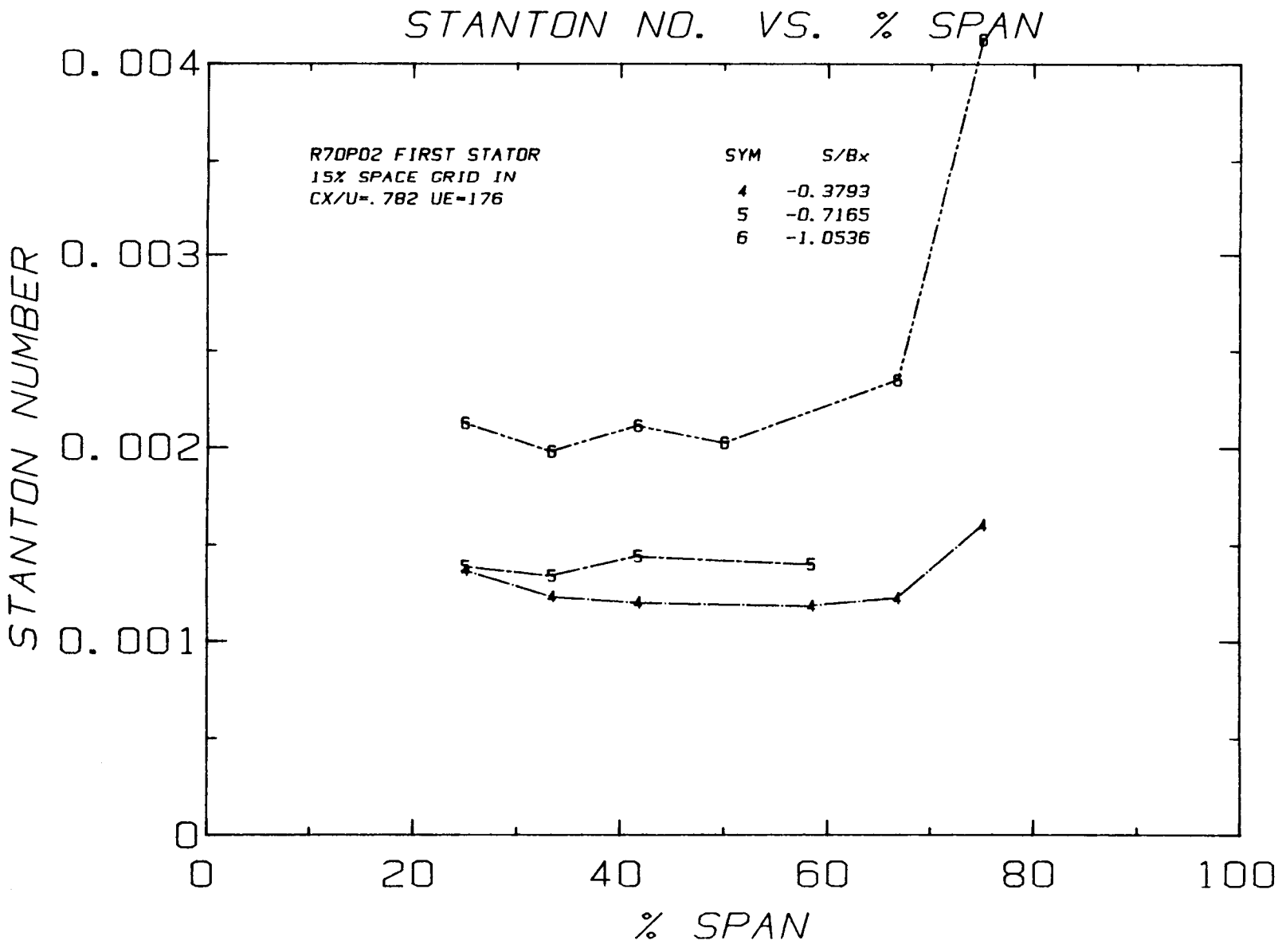
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P02 FIRST STATOR
15% SPACE GRID IN
CX/U=.782 UE=176
SYM S/Bx
1 0.4214
2 0.8429
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P02 FIRST STATOR
15% SPACE GRID IN
CX/U=.782 UE=176
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.782 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.5	176.4	0.0757	0.01466	0.2280	5.932
SI	12.0	53.8	1.2132	0.02536	2.5876	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002247	874.8	85.2	29.5
2	10.50	1.770	0.002362	919.6	84.1	28.9
3	10.00	1.686	0.002348	913.9	84.3	29.1
4	9.50	1.601	0.002388	929.8	83.9	28.8
5	9.00	1.517	0.002459	957.2	83.1	28.4
6	8.50	1.433	0.002662	1036.4	81.0	27.2
11	7.50	1.264	0.002727	1061.8	80.4	26.9
16	6.50	1.096	0.002913	1134.1	78.8	26.0
17	6.00	1.011	0.002920	1136.8	78.7	25.9
22	5.00	0.843	0.002755	1072.4	80.1	26.7
26	4.50	0.759	0.002610	1016.2	81.5	27.5
27	4.00	0.674	0.002444	951.6	83.3	28.5
29	3.00	0.506	0.002219	863.9	86.2	30.1
33	2.50	0.421	0.002276	886.1	85.4	29.6
37	2.00	0.337	0.002246	874.2	85.7	29.9
38	1.50	0.253	0.002299	894.9	85.0	29.5
41	0.45	0.076	0.003279	1276.4	75.7	24.3
42	0.40	0.067	0.003119	1214.0	76.8	24.9
51	-0.05	-0.008	0.003067	1193.8	77.2	25.1
52	-0.10	-0.017	0.002896	1127.5	78.5	25.8
53	-0.15	-0.025	0.002592	1009.2	81.3	27.4
56	-0.30	-0.051	0.002281	888.1	85.0	29.4
57	-0.35	-0.059	0.002101	817.9	87.5	30.9
58	-0.40	-0.067	0.002035	792.2	88.6	31.4
45	0.25	0.042	0.003418	1330.5	74.8	23.8
46	0.20	0.034	0.003426	1333.5	74.7	23.7
47	0.15	0.025	0.003447	1342.0	74.6	23.7
49	0.05	0.008	0.003394	1321.4	74.9	23.9
50	0.00	0.000	0.003332	1297.2	75.3	24.1
54	-0.20	-0.034	0.002440	949.8	83.0	28.3
55	-0.25	-0.042	0.002244	873.7	85.5	29.7
59	-0.45	-0.076	0.001910	743.5	90.8	32.7
62	-1.00	-0.169	0.001507	586.7	100.4	38.0
63	-1.25	-0.211	0.001422	553.7	103.1	39.5
65	-1.75	-0.295	0.001276	496.6	108.5	42.5
74	-3.25	-0.548	0.001233	479.8	110.0	43.3
75	-3.75	-0.632	0.001340	521.8	105.7	40.9
83	-4.75	-0.801	0.001521	592.2	99.6	37.6
89	-6.25	-1.054	0.002024	787.8	88.6	31.5
93	-6.75	-1.138	0.002218	863.6	85.7	29.8

FIRST STATOR CX/U=.782 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.5	176.4	0.0757	0.01466	0.2280	5.932
SI	12.0	53.8	1.2132	0.02536	2.5876	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002251	876.1	85.7	29.8
31	4.00	66.7	0.002140	833.1	87.3	30.7
32	3.50	58.3	0.002075	807.7	88.3	31.3
33	3.00	50.0	0.002276	886.1	85.4	29.6
34	2.50	41.7	0.002141	833.3	87.3	30.7
35	2.00	33.3	0.002199	856.1	86.4	30.2
36	1.50	25.0	0.002600	1012.2	81.5	27.5

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002784	1084.0	79.8	26.6
20	4.00	66.7	0.002609	1015.7	81.6	27.5
21	3.50	58.3	0.002630	1023.8	81.3	27.4
22	3.00	50.0	0.002755	1072.4	80.1	26.7
23	2.50	41.7	0.002711	1055.5	80.5	27.0
24	2.00	33.3	0.002767	1077.2	80.0	26.7
25	1.50	25.0	0.003154	1227.9	76.8	24.9

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003265	1271.0	76.1	24.5
9	4.00	66.7	999.000000********		999.0	537.2
11	3.00	50.0	0.002727	1061.8	80.4	26.9
12	2.50	41.7	0.002728	1061.9	80.4	26.9
13	2.00	33.3	0.002551	993.0	82.2	27.9
14	1.50	25.0	0.002948	1147.8	78.5	25.8

S/BX = -0.37930

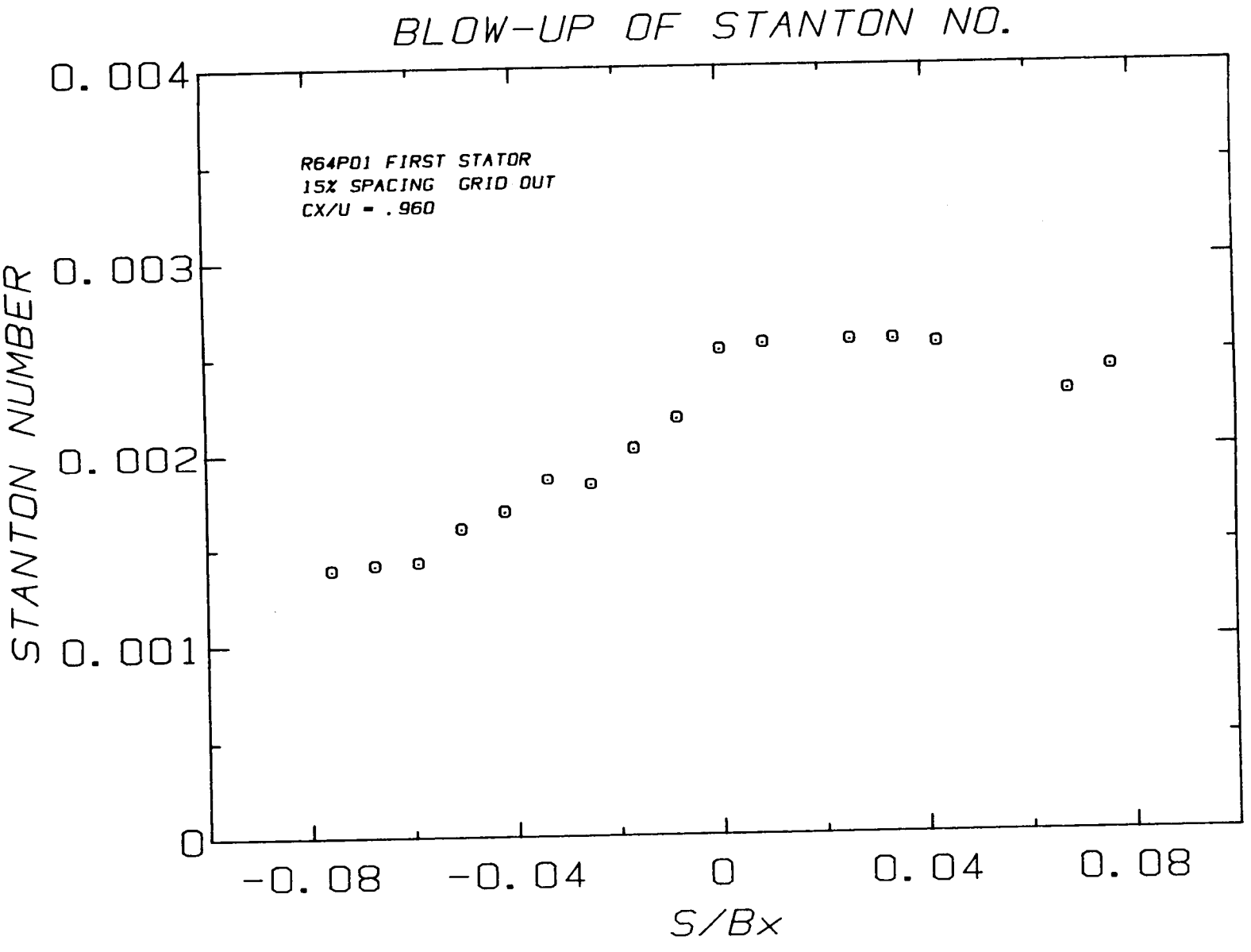
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001601	623.4	97.9	36.6
67	4.00	66.7	0.001224	476.4	110.6	43.7
68	3.50	58.3	0.001184	460.7	112.4	44.7
70	2.50	41.7	0.001200	467.1	111.7	44.3
71	2.00	33.3	0.001231	479.0	110.3	43.5
72	1.50	25.0	0.001368	532.6	104.9	40.5

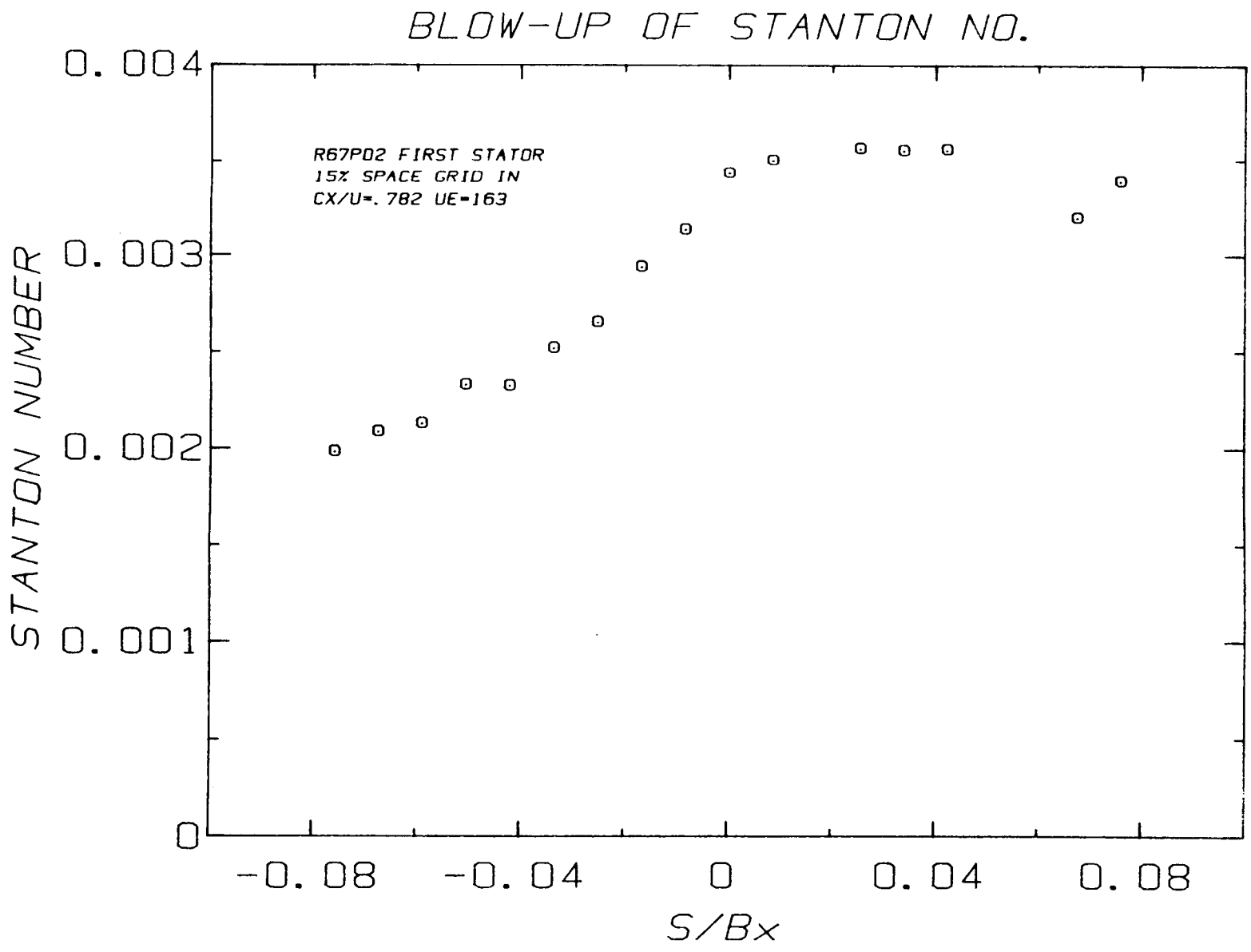
S/BX = -0.71645

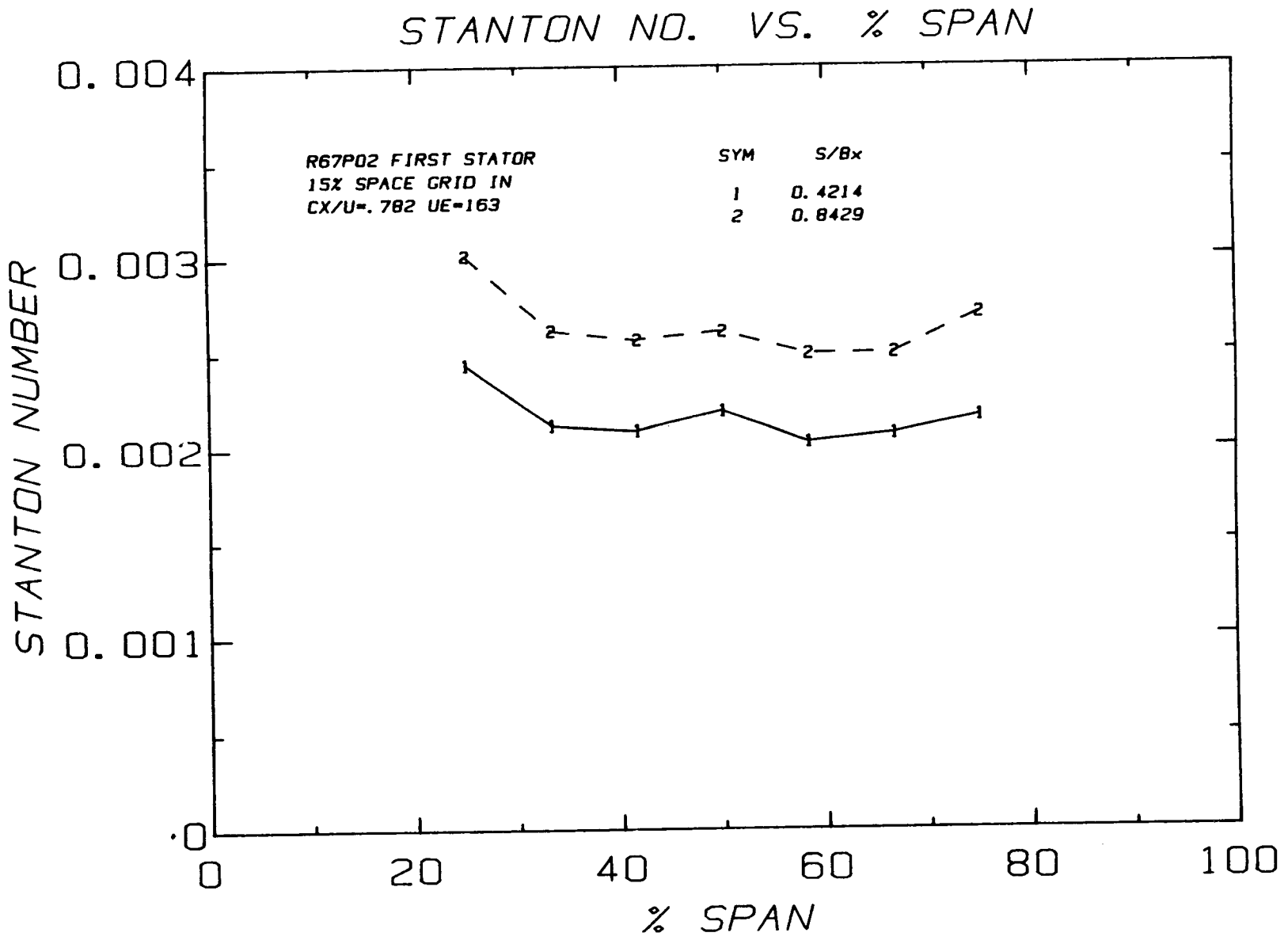
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001400	545.2	103.5	39.7
80	2.50	41.7	0.001441	561.1	102.2	39.0
81	2.00	33.3	0.001338	521.0	105.6	40.9
82	1.50	25.0	0.001388	540.3	103.9	40.0

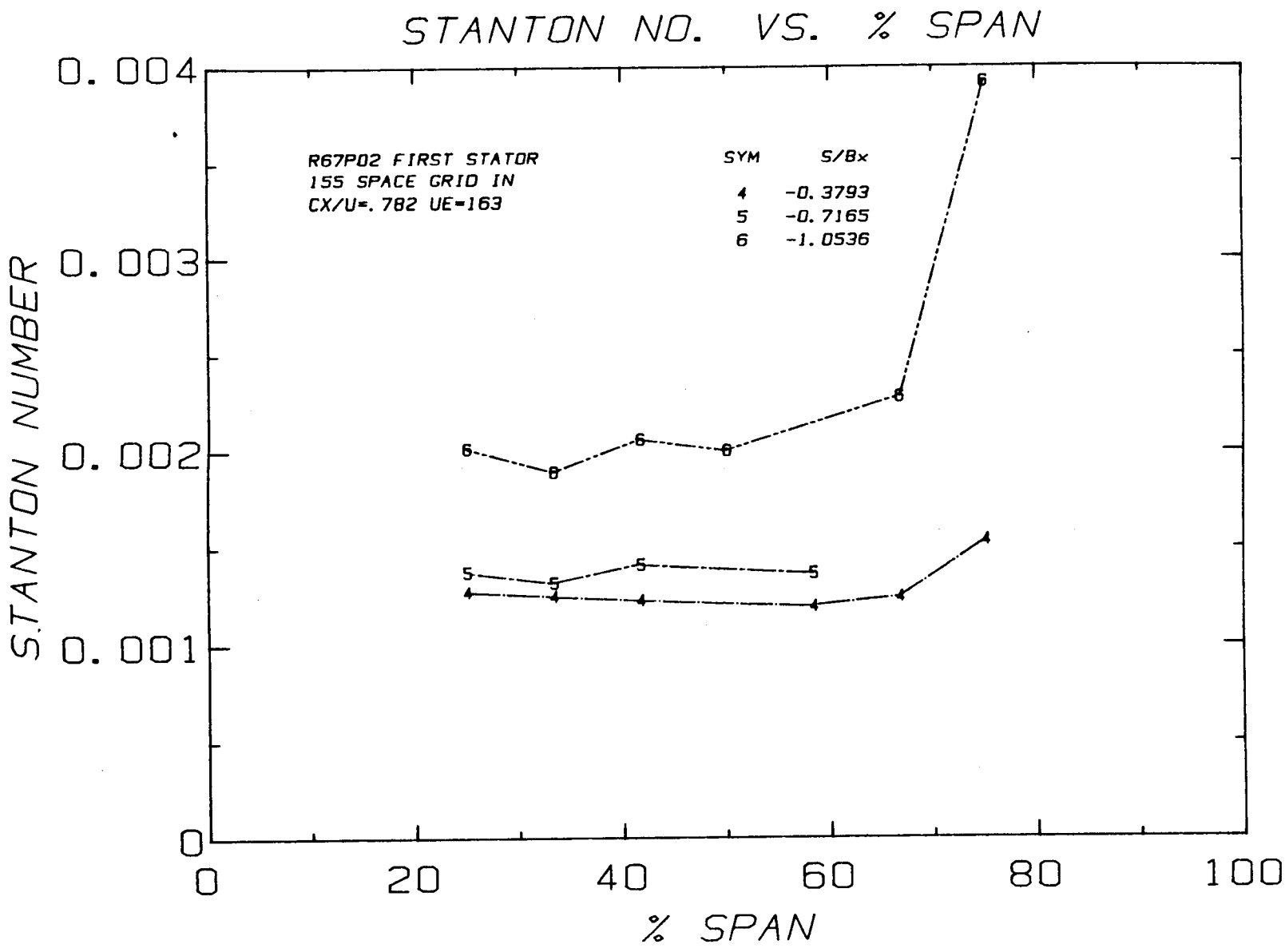
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.004123	1605.1	71.2	21.8
87	4.00	66.7	0.002347	913.6	84.0	28.9
89	3.00	50.0	0.002024	787.8	88.6	31.5
90	2.50	41.7	0.002113	822.5	87.2	30.7
91	2.00	33.3	0.001979	770.6	89.4	31.9
92	1.50	25.0	0.002126	827.5	87.1	30.6


BLOW-UP OF STANTON NO.
R64P01 FIRST STATOR
15% SPACING GRID OUT
CX/U = .960
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


BLOW-UP OF STANTON NO.
R67P02 FIRST STATOR
15% SPACE GRID IN
CX/U=.782 UE=163
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R67P02 FIRST STATOR
15% SPACE GRID IN
CX/U=.782 UE=163
SYM S/Bx
1 0.4214
2 0.8429
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R67P02 FIRST STATOR
155 SPACE GRID IN
CX/U=.782 UE=163
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.782 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 67 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.1	163.6	0.0764	0.01467	0.1970	5.932
SI	12.3	49.9	1.2241	0.02537	2.2358	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002213	805.9	83.4	28.5
2	10.50	1.770	0.002344	853.4	82.2	27.9
3	10.00	1.686	0.002332	849.1	82.4	28.0
4	9.50	1.601	0.002382	867.3	81.8	27.7
5	9.00	1.517	0.002446	890.6	81.2	27.4
6	8.50	1.433	0.002687	978.1	79.0	26.1
11	7.50	1.264	0.002748	1000.5	78.5	25.8
16	6.50	1.096	0.002902	1056.6	77.3	25.1
17	6.00	1.011	0.002890	1052.1	77.3	25.2
22	5.00	0.843	0.002612	951.0	79.6	26.5
26	4.50	0.759	0.002402	874.4	81.8	27.6
27	4.00	0.674	0.002183	794.9	84.4	29.1
29	3.00	0.506	0.002078	756.7	85.8	29.9
33	2.50	0.421	0.002196	799.7	84.1	29.0
37	2.00	0.337	0.002219	807.9	83.8	28.8
38	1.50	0.253	0.002324	846.0	82.5	28.0
41	0.45	0.076	0.003383	1231.7	73.7	23.1
42	0.40	0.067	0.003193	1162.7	74.8	23.8
51	-0.05	-0.008	0.003130	1139.4	75.2	24.0
52	-0.10	-0.017	0.002937	1069.4	76.5	24.7
53	-0.15	-0.025	0.002649	964.5	78.9	26.0
56	-0.30	-0.051	0.002325	846.4	82.2	27.9
57	-0.35	-0.059	0.002124	773.3	84.7	29.3
58	-0.40	-0.067	0.002082	758.1	85.3	29.6
45	0.25	0.042	0.003560	1296.2	72.7	22.6
46	0.20	0.034	0.003555	1294.3	72.8	22.6
47	0.15	0.025	0.003565	1298.1	72.7	22.6
49	0.05	0.008	0.003500	1274.3	73.0	22.8
50	0.00	0.000	0.003427	1247.7	73.4	23.0
54	-0.20	-0.034	0.002515	915.6	80.2	26.8
55	-0.25	-0.042	0.002320	844.6	82.2	27.9
59	-0.45	-0.076	0.001979	720.7	86.8	30.5
62	-1.00	-0.169	0.001543	561.9	95.8	35.4
63	-1.25	-0.211	0.001460	531.5	98.0	36.7
65	-1.75	-0.295	0.001304	474.6	103.0	39.4
74	-3.25	-0.548	0.001214	442.1	106.0	41.1
75	-3.75	-0.632	0.001312	477.8	102.4	39.1
83	-4.75	-0.801	0.001486	541.2	96.9	36.0
89	-6.25	-1.054	0.002001	728.6	86.4	30.2
93	-6.75	-1.138	0.002223	809.5	83.3	28.5

FIRST STATOR CX/U=.782 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 67 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.1	163.6	0.0764	0.01467	0.1970	5.932
SI	12.3	49.9	1.2241	0.02537	2.2358	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002162	787.3	84.6	29.2
31	4.00	66.7	0.002072	754.3	85.8	29.9
32	3.50	58.3	0.002032	739.9	86.4	30.2
33	3.00	50.0	0.002196	799.7	84.1	29.0
34	2.50	41.7	0.002093	762.0	85.5	29.7
35	2.00	33.3	0.002122	772.7	85.1	29.5
36	1.50	25.0	0.002441	888.7	81.2	27.3

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002702	983.6	78.8	26.0
20	4.00	66.7	0.002496	908.7	80.8	27.1
21	3.50	58.3	0.002494	907.9	80.8	27.1
22	3.00	50.0	0.002612	951.0	79.6	26.5
23	2.50	41.7	0.002569	935.2	80.1	26.7
24	2.00	33.3	0.002618	953.0	79.6	26.4
25	1.50	25.0	0.003014	1097.2	76.3	24.6

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003316	1207.4	74.4	23.6
9	4.00	66.7	999.000000*********		999.0	537.2
11	3.00	50.0	0.002748	1000.5	78.5	25.8
12	2.50	41.7	0.002749	1000.9	78.5	25.8
13	2.00	33.3	0.002544	926.2	80.4	26.9
14	1.50	25.0	0.002986	1087.0	76.6	24.8

S/BX = -0.37930

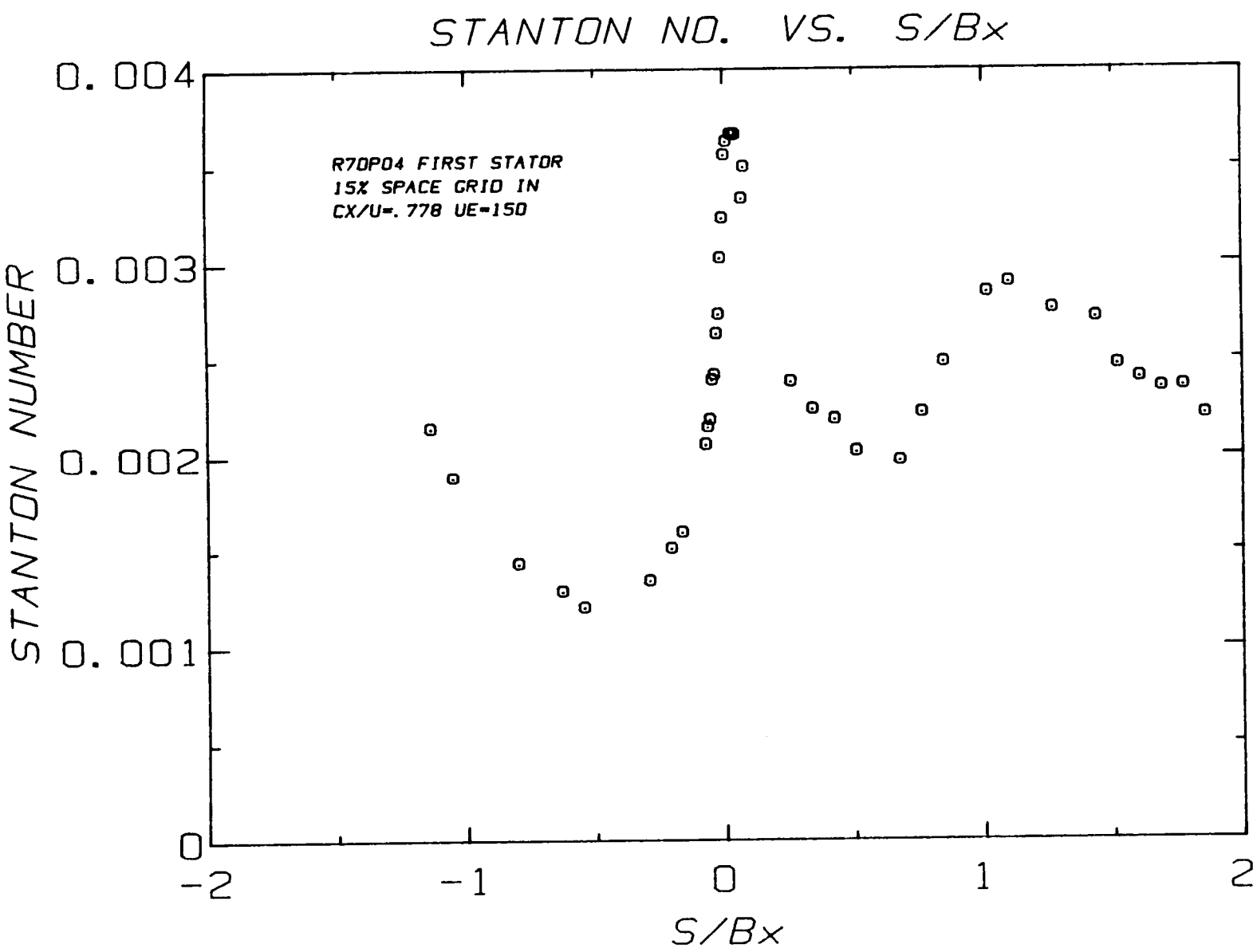
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001538	560.1	95.9	35.5
67	4.00	66.7	0.001243	452.6	105.1	40.6
68	3.50	58.3	0.001196	435.3	107.0	41.7
70	2.50	41.7	0.001227	446.6	105.8	41.0
71	2.00	33.3	0.001248	454.5	104.9	40.5
72	1.50	25.0	0.001272	463.3	104.0	40.0

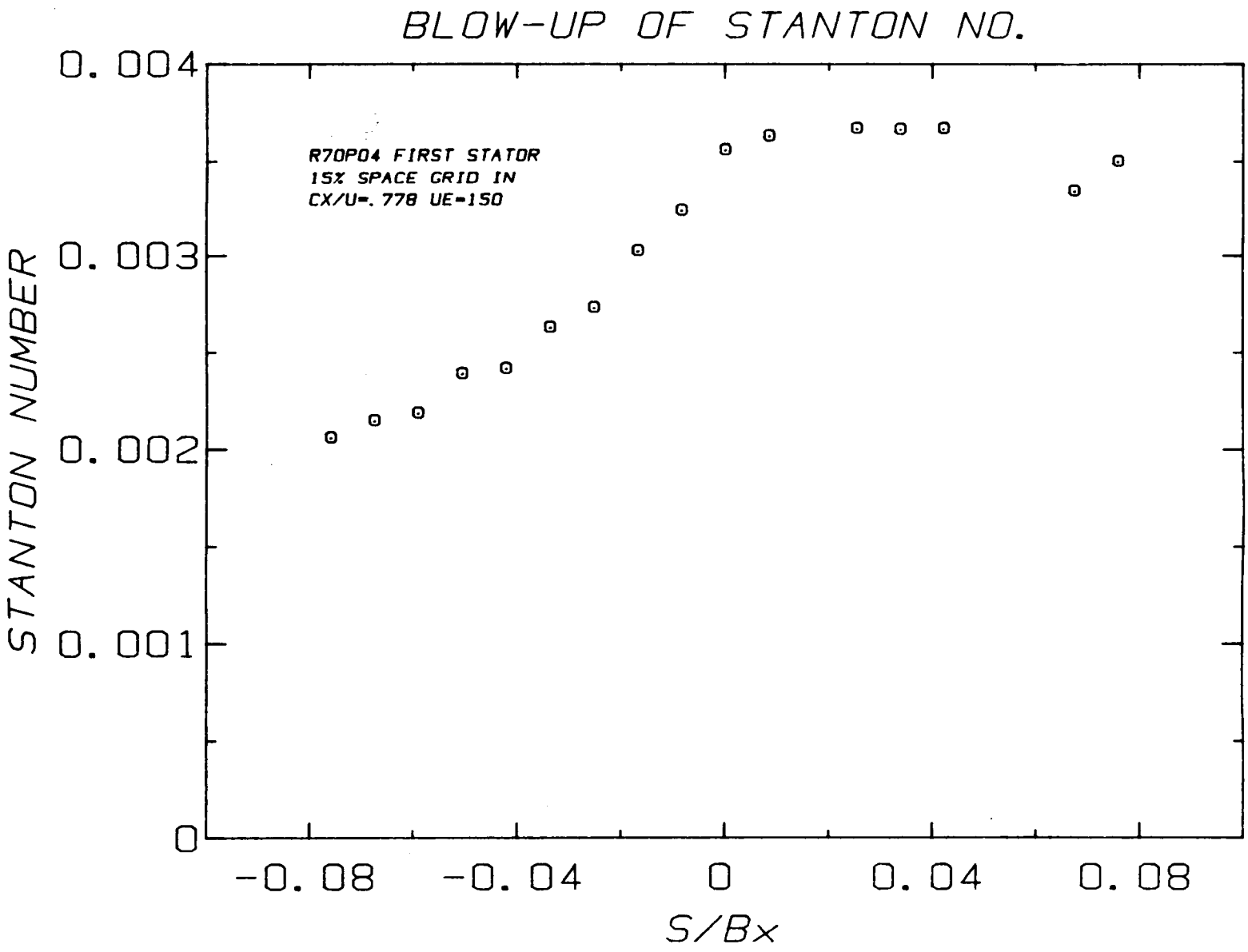
S/BX = -0.71645

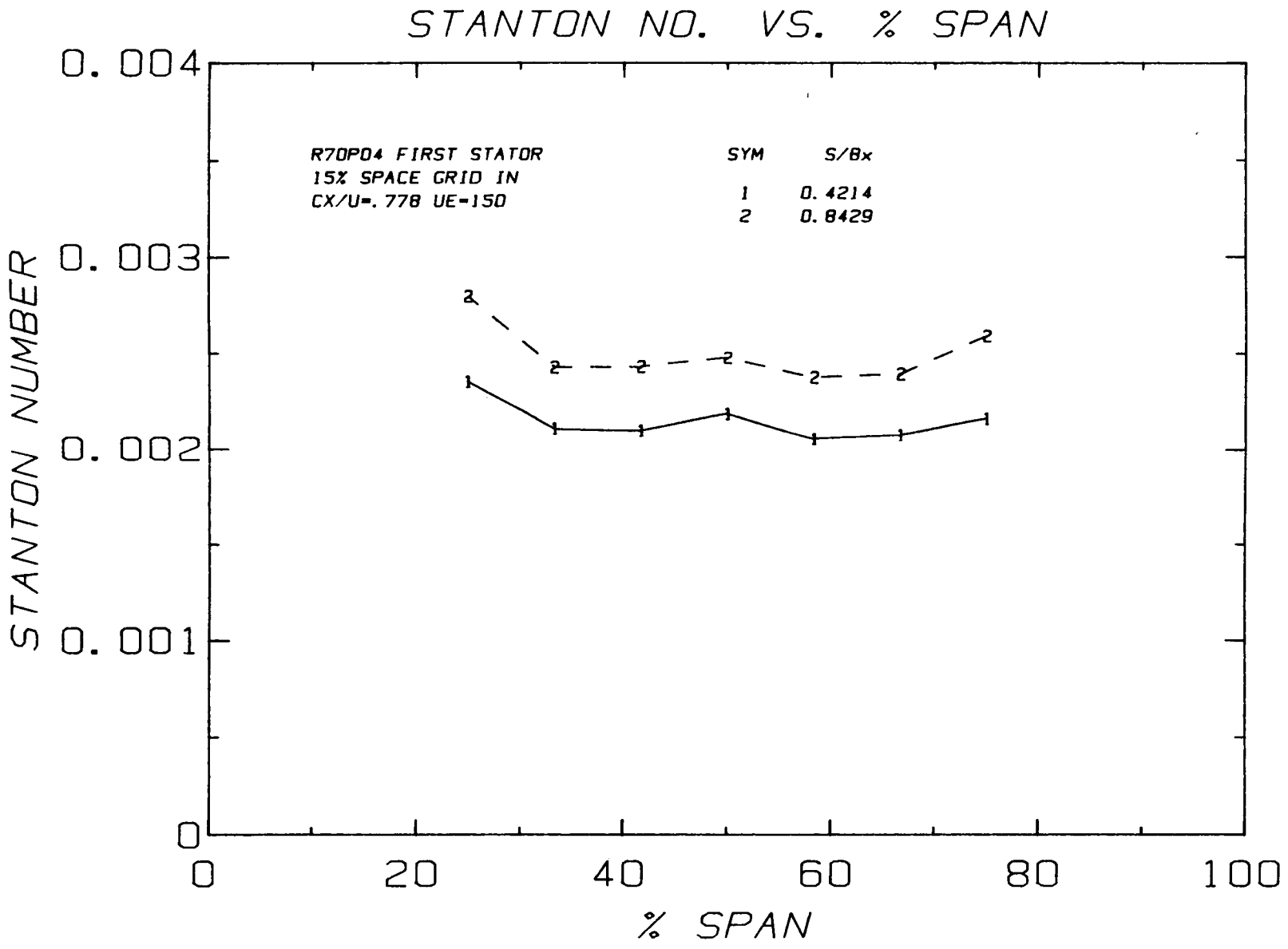
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001368	498.0	100.5	38.0
80	2.50	41.7	0.001413	514.5	99.1	37.3
81	2.00	33.3	0.001318	479.9	102.1	38.9
82	1.50	25.0	0.001374	500.4	100.2	37.9

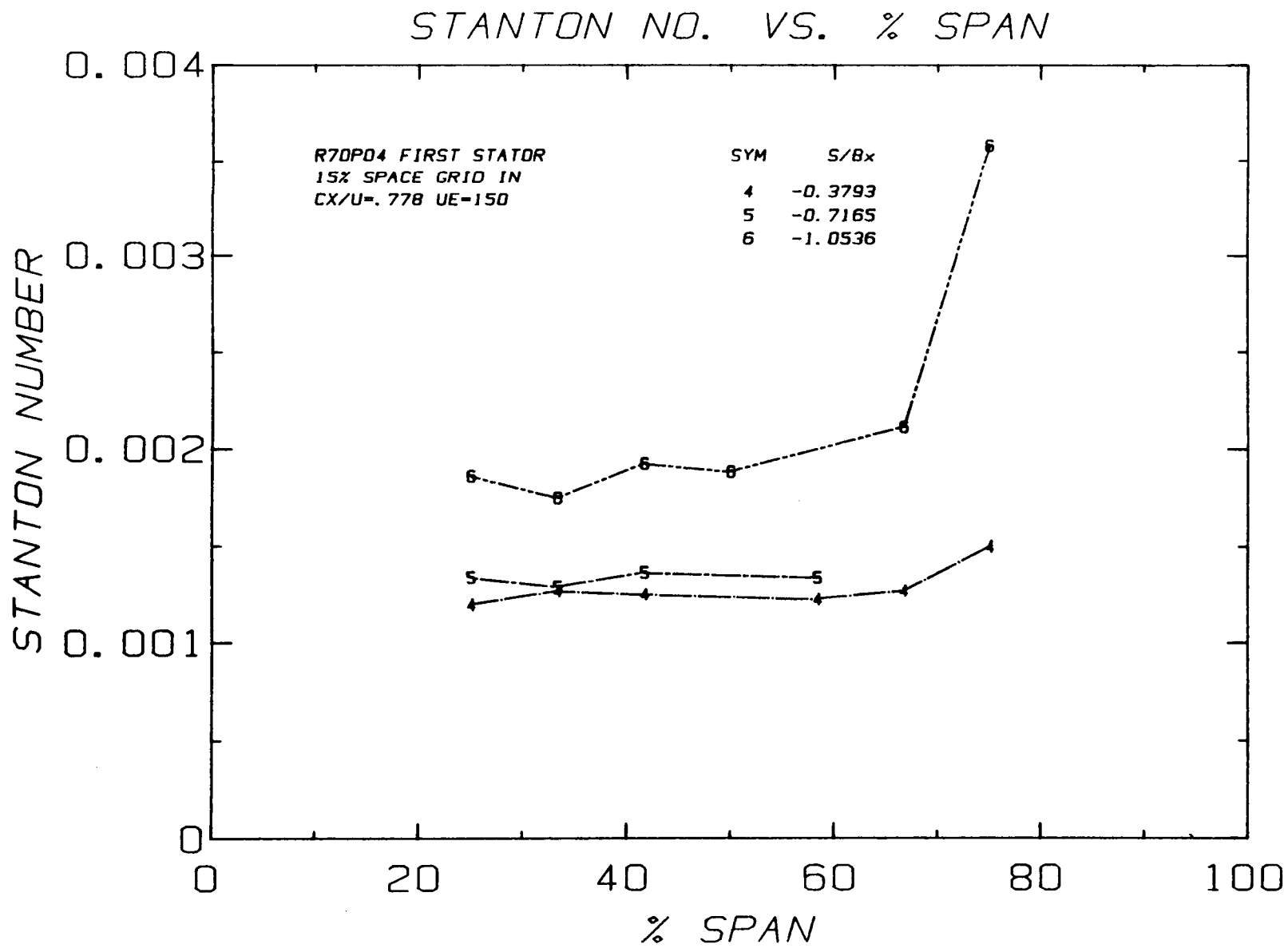
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.003918	1426.4	71.1	21.7
87	4.00	66.7	0.002280	830.1	82.6	28.1
89	3.00	50.0	0.002001	728.6	86.4	30.2
90	2.50	41.7	0.002060	749.9	85.5	29.7
91	2.00	33.3	0.001891	688.5	88.1	31.2
92	1.50	25.0	0.002014	733.2	86.2	30.1


STANTON NO. VS. S/Bx
R7OP04 FIRST STATOR
15% SPACE GRID IN
CX/U=.778 UE=150
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P04 FIRST STATOR
15% SPACE GRID IN
CX/U=.778 UE=150
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P04 FIRST STATOR
15% SPACE GRID IN
CX/U=.778 UE=150
SYM S/Bx
1 0.4214
2 0.8429
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P04 FIRST STATOR
15% SPACE GRID IN
CX/U=.778 UE=150
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.778 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.2	149.5	0.0762	0.01464	0.1750	5.932
SI	11.8	45.6	1.2214	0.02532	1.9861	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002201	732.1	82.0	27.8
2	10.50	1.770	0.002347	780.8	80.7	27.1
3	10.00	1.686	0.002339	778.3	80.8	27.1
4	9.50	1.601	0.002392	795.8	80.3	26.8
5	9.00	1.517	0.002462	818.9	79.6	26.5
6	8.50	1.433	0.002708	900.8	77.4	25.2
11	7.50	1.264	0.002754	916.1	77.1	25.0
16	6.50	1.096	0.002893	962.4	76.0	24.4
17	6.00	1.011	0.002841	945.0	76.3	24.6
22	5.00	0.843	0.002476	823.8	79.5	26.4
26	4.50	0.759	0.002216	737.3	82.4	28.0
27	4.00	0.674	0.001970	655.5	85.9	29.9
29	3.00	0.506	0.002020	672.0	85.0	29.4
33	2.50	0.421	0.002185	726.9	82.7	28.2
37	2.00	0.337	0.002237	744.2	82.0	27.8
38	1.50	0.253	0.002378	791.0	80.4	26.9
41	0.45	0.076	0.003494	1162.3	71.8	22.1
42	0.40	0.067	0.003329	1107.4	72.7	22.6
51	-0.05	-0.008	0.003227	1073.7	73.2	22.9
52	-0.10	-0.017	0.003020	1004.6	74.6	23.7
53	-0.15	-0.025	0.002729	907.8	76.8	24.9
56	-0.30	-0.051	0.002386	793.9	80.0	26.7
57	-0.35	-0.059	0.002183	726.3	82.3	28.0
58	-0.40	-0.067	0.002143	713.1	82.9	28.3
45	0.25	0.042	0.003663	1218.5	70.9	21.6
46	0.20	0.034	0.003658	1216.8	71.0	21.6
47	0.15	0.025	0.003663	1218.7	70.9	21.6
49	0.05	0.008	0.003625	1205.8	71.1	21.7
50	0.00	0.000	0.003554	1182.4	71.5	21.9
54	-0.20	-0.034	0.002626	873.7	77.6	25.4
55	-0.25	-0.042	0.002413	802.7	79.7	26.5
59	-0.45	-0.076	0.002056	684.0	84.0	28.9
62	-1.00	-0.169	0.001592	529.8	92.7	33.7
63	-1.25	-0.211	0.001509	502.1	94.7	34.9
65	-1.75	-0.295	0.001343	446.7	99.5	37.5
74	-3.25	-0.548	0.001204	400.4	104.2	40.1
75	-3.75	-0.632	0.001289	428.8	101.0	38.3
83	-4.75	-0.801	0.001433	476.9	96.3	35.7
89	-6.25	-1.054	0.001882	626.0	86.6	30.3
93	-6.75	-1.138	0.002144	713.2	82.8	28.2

FIRST STATOR CX/U=.778 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.2	149.5	0.0762	0.01464	0.1750	5.932
SI	11.8	45.6	1.2214	0.02532	1.9861	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002158	718.0	83.0	28.4
31	4.00	66.7	0.002075	690.2	84.2	29.0
32	3.50	58.3	0.002056	684.1	84.5	29.1
33	3.00	50.0	0.002185	726.9	82.7	28.2
34	2.50	41.7	0.002099	698.3	83.8	28.8
35	2.00	33.3	0.002110	702.0	83.7	28.7
36	1.50	25.0	0.002354	783.1	80.7	27.0

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002591	861.9	78.4	25.8
20	4.00	66.7	0.002391	795.6	80.4	26.9
21	3.50	58.3	0.002375	790.0	80.6	27.0
22	3.00	50.0	0.002476	823.8	79.5	26.4
23	2.50	41.7	0.002430	808.3	80.0	26.7
24	2.00	33.3	0.002427	807.5	80.0	26.7
25	1.50	25.0	0.002797	930.4	76.6	24.8

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003345	1112.6	73.0	22.8
9	4.00	66.7	999.000000*********		999.0	537.2
11	3.00	50.0	0.002754	916.1	77.1	25.0
12	2.50	41.7	0.002752	915.4	77.1	25.0
13	2.00	33.3	0.002554	849.6	78.8	26.0
14	1.50	25.0	0.003005	999.7	75.1	24.0

S/BX = -0.37930

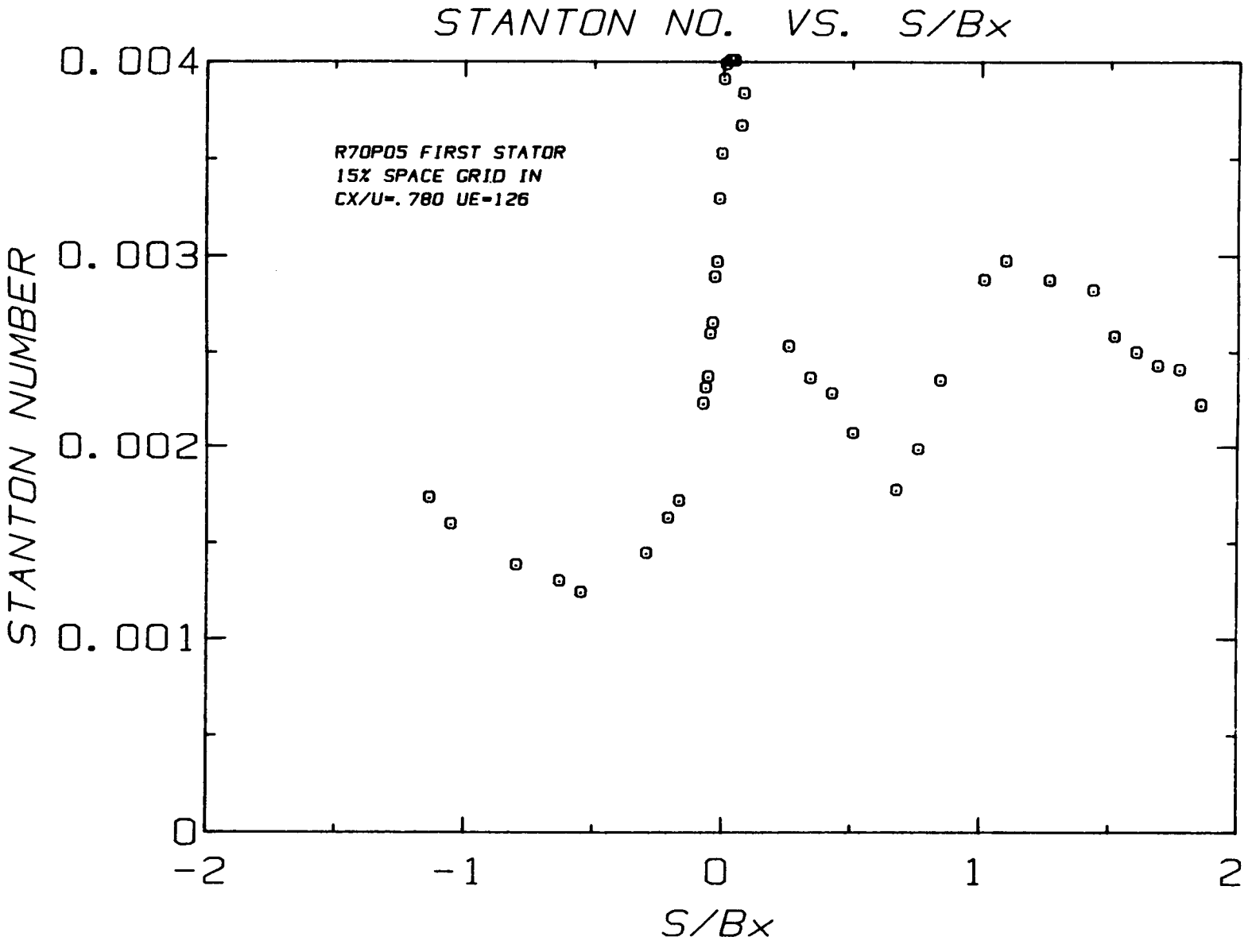
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001498	498.4	95.0	35.0
67	4.00	66.7	0.001266	421.2	102.1	38.9
68	3.50	58.3	0.001224	407.4	103.6	39.8
70	2.50	41.7	0.001248	415.3	102.7	39.3
71	2.00	33.3	0.001265	420.9	102.1	38.9
72	1.50	25.0	0.001195	397.5	104.7	40.4

S/BX = -0.71645

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001337	444.9	99.3	37.4
80	2.50	41.7	0.001364	453.6	98.5	36.9
81	2.00	33.3	0.001287	428.3	100.9	38.3
82	1.50	25.0	0.001337	444.8	99.3	37.4

S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.003581	1191.2	71.3	21.8
87	4.00	66.7	0.002112	702.7	83.2	28.4
89	3.00	50.0	0.001882	626.0	86.6	30.3
90	2.50	41.7	0.001924	640.2	85.9	29.9
91	2.00	33.3	0.001747	581.3	89.0	31.6
92	1.50	25.0	0.001860	618.7	87.0	30.5


STANTON NO. VS. S/Bx
R70P05 FIRST STATOR
15% SPACE GRID IN
CX/U=.780 UE=126
STANTON NUMBER
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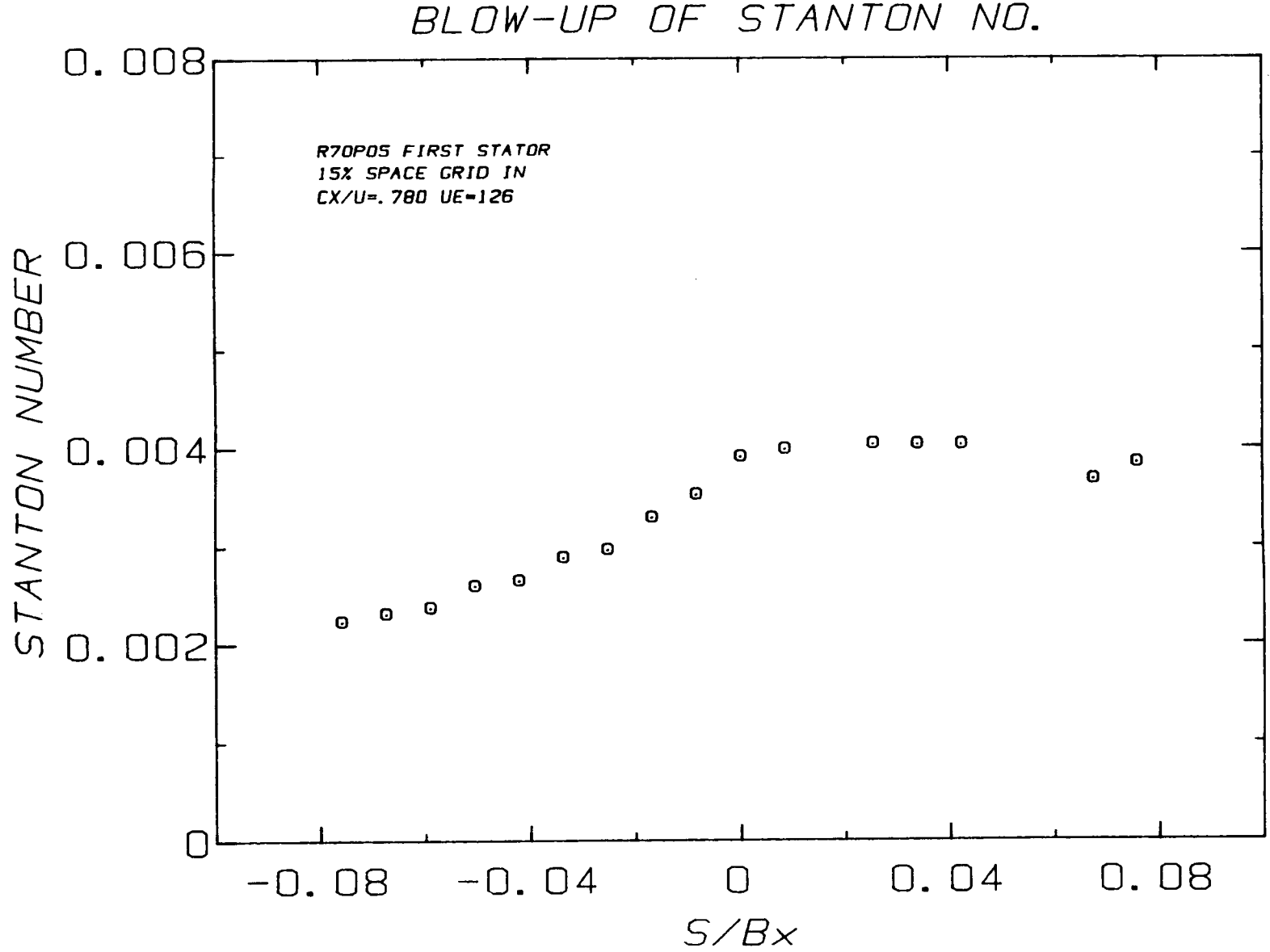
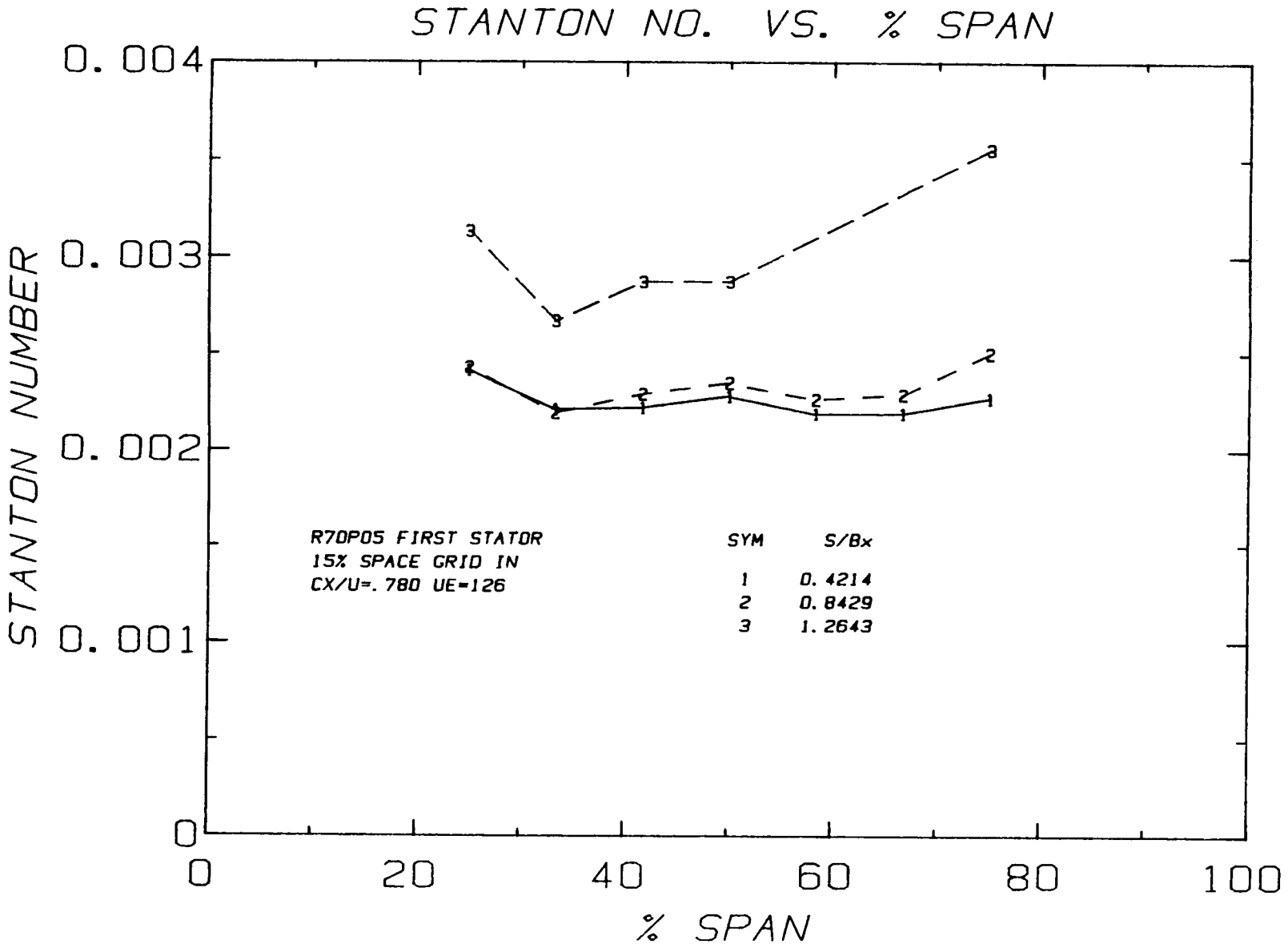
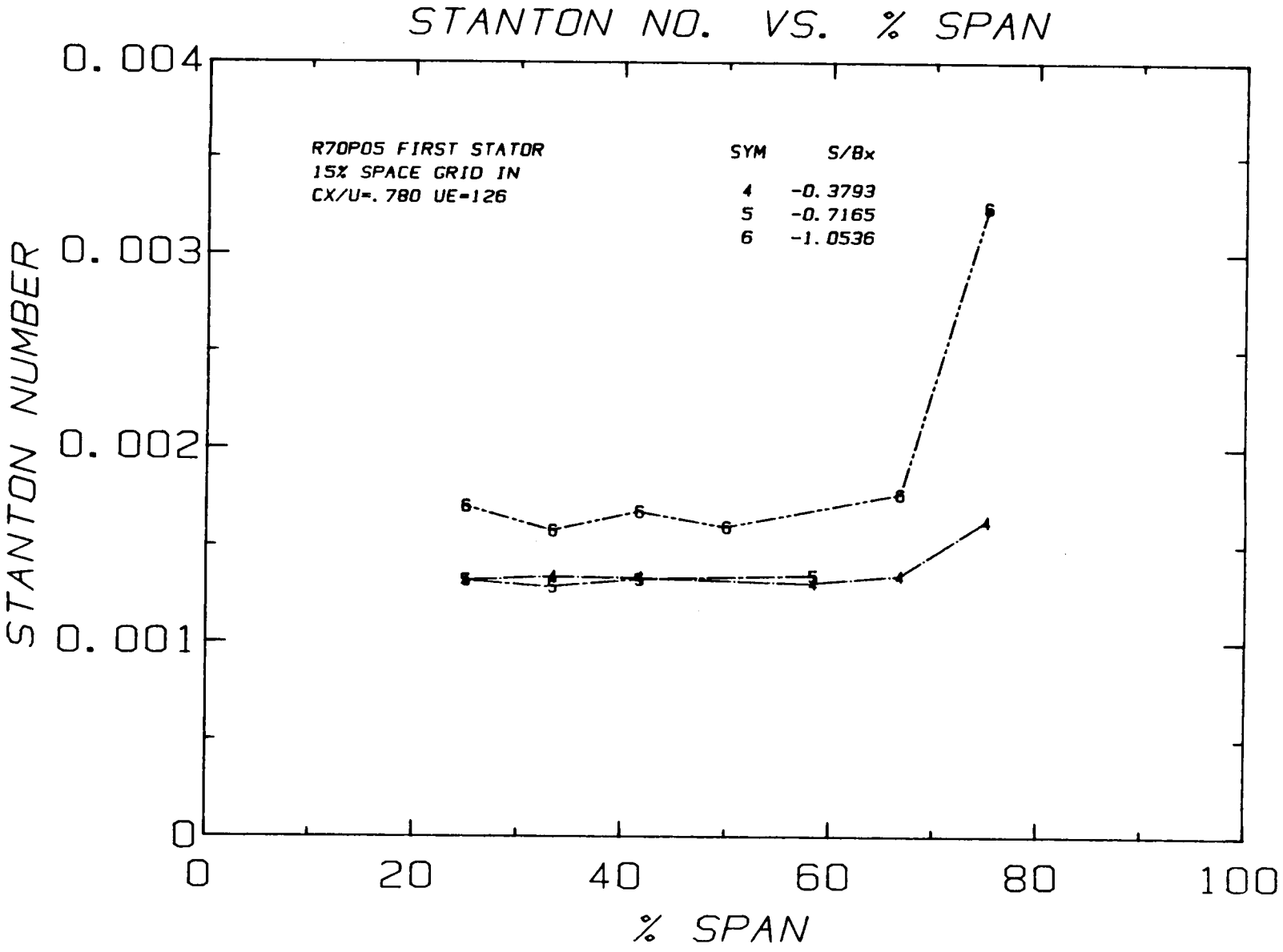
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P05 FIRST STATOR
15% SPACE GRID IN
CX/U=.780 UE=126
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN
R70P05 FIRST STATOR
15% SPACE GRID IN
CX/U=.780 UE=126
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643


STANTON NO. VS. % SPAN
R70P05 FIRST STATOR
15% SPACE GRID IN
CX/U=.780 UE=126
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.780 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 5

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.2	126.4	0.0766	0.01464	0.1620	5.932
SI	11.8	38.5	1.2270	0.02532	1.8385	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002220	627.2	84.3	29.1
2	10.50	1.770	0.002405	679.3	82.6	28.1
3	10.00	1.686	0.002424	684.9	82.5	28.0
4	9.50	1.601	0.002494	704.6	81.7	27.6
5	9.00	1.517	0.002577	728.0	81.0	27.2
6	8.50	1.433	0.002818	796.2	78.8	26.0
11	7.50	1.264	0.002870	810.8	78.4	25.8
16	6.50	1.096	0.002969	838.8	77.6	25.4
17	6.00	1.011	0.002871	811.1	78.4	25.8
22	5.00	0.843	0.002348	663.2	83.6	28.7
26	4.50	0.759	0.001980	559.4	88.9	31.6
27	4.00	0.674	0.001767	499.2	92.8	33.8
29	3.00	0.506	0.002072	585.2	87.2	30.7
33	2.50	0.421	0.002279	643.8	84.3	29.0
37	2.00	0.337	0.002361	666.8	83.2	28.5
38	1.50	0.253	0.002525	713.3	81.3	27.4
41	0.45	0.076	0.003834	1083.0	71.9	22.2
42	0.40	0.067	0.003666	1035.6	72.7	22.6
51	-0.05	-0.008	0.003520	994.5	73.5	23.0
52	-0.10	-0.017	0.003288	928.8	74.9	23.8
53	-0.15	-0.025	0.002963	836.9	77.1	25.1
56	-0.30	-0.051	0.002590	731.6	80.4	26.9
57	-0.35	-0.059	0.002366	668.3	82.8	28.2
58	-0.40	-0.067	0.002308	651.9	83.5	28.6
45	0.25	0.042	0.004029	1138.0	71.0	21.7
46	0.20	0.034	0.004029	1138.2	71.0	21.7
47	0.15	0.025	0.004033	1139.2	71.0	21.7
49	0.05	0.008	0.003981	1124.6	71.2	21.8
50	0.00	0.000	0.003906	1103.3	71.6	22.0
54	-0.20	-0.034	0.002885	815.1	77.7	25.4
55	-0.25	-0.042	0.002646	747.5	79.8	26.6
59	-0.45	-0.076	0.002226	628.9	84.5	29.2
62	-1.00	-0.169	0.001712	483.5	93.5	34.2
63	-1.25	-0.211	0.001623	458.5	95.6	35.3
65	-1.75	-0.295	0.001439	406.4	100.6	38.1
74	-3.25	-0.548	0.001236	349.1	107.3	41.8
75	-3.75	-0.632	0.001295	365.8	104.9	40.5
83	-4.75	-0.801	0.001379	389.4	101.8	38.8
89	-6.25	-1.054	0.001593	450.1	95.6	35.3
93	-6.75	-1.138	0.001730	488.8	92.5	33.6

FIRST STATOR CX/U=.780 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 5

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.2	126.4	0.0766	0.01464	0.1620	5.932
SI	11.8	38.5	1.2270	0.02532	1.8385	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002268	640.7	84.4	29.1
31	4.00	66.7	0.002189	618.4	85.5	29.7
32	3.50	58.3	0.002188	618.1	85.5	29.7
33	3.00	50.0	0.002279	643.8	84.3	29.0
34	2.50	41.7	0.002219	626.7	85.1	29.5
35	2.00	33.3	0.002209	623.9	85.2	29.6
36	1.50	25.0	0.002411	681.2	82.7	28.1

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002500	706.3	81.9	27.7
20	4.00	66.7	0.002286	645.9	84.4	29.1
21	3.50	58.3	0.002262	639.0	84.7	29.3
22	3.00	50.0	0.002348	663.2	83.6	28.7
23	2.50	41.7	0.002288	646.5	84.4	29.1
24	2.00	33.3	0.002189	618.5	85.7	29.8
25	1.50	25.0	0.002427	685.5	82.7	28.2

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003551	1003.2	73.8	23.2
11	3.00	50.0	0.002870	810.8	78.4	25.8
12	2.50	41.7	0.002868	810.1	78.4	25.8
13	2.00	33.3	0.002666	753.0	80.2	26.8
14	1.50	25.0	0.003130	884.2	76.4	24.7

S/BX = -0.37930

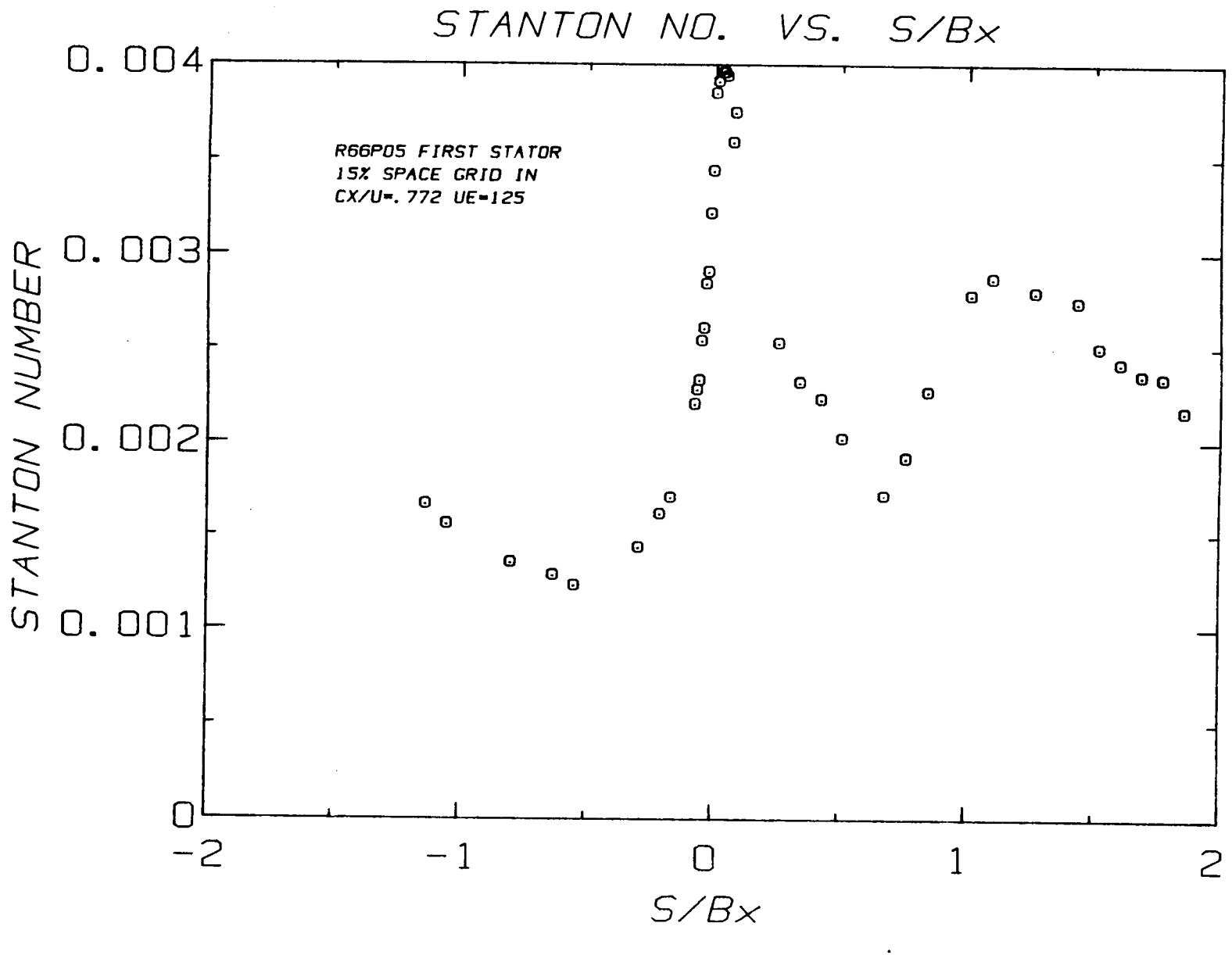
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001625	459.2	95.5	35.3
67	4.00	66.7	0.001341	378.8	103.7	39.8
68	3.50	58.3	0.001303	368.0	105.0	40.6
70	2.50	41.7	0.001332	376.3	104.0	40.0
71	2.00	33.3	0.001337	377.8	103.8	39.9
72	1.50	25.0	0.001315	371.5	104.5	40.3

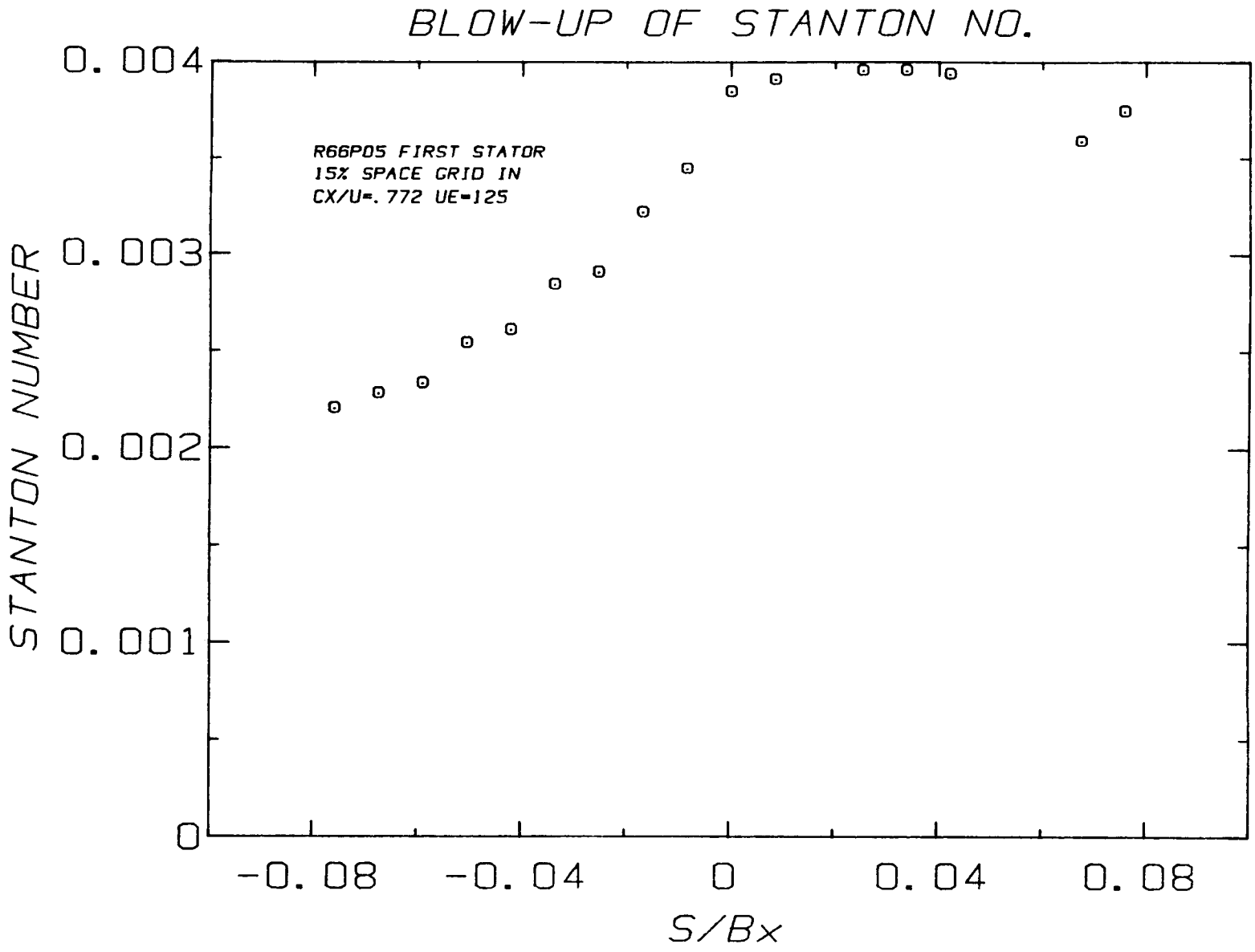
S/BX = -0.71645

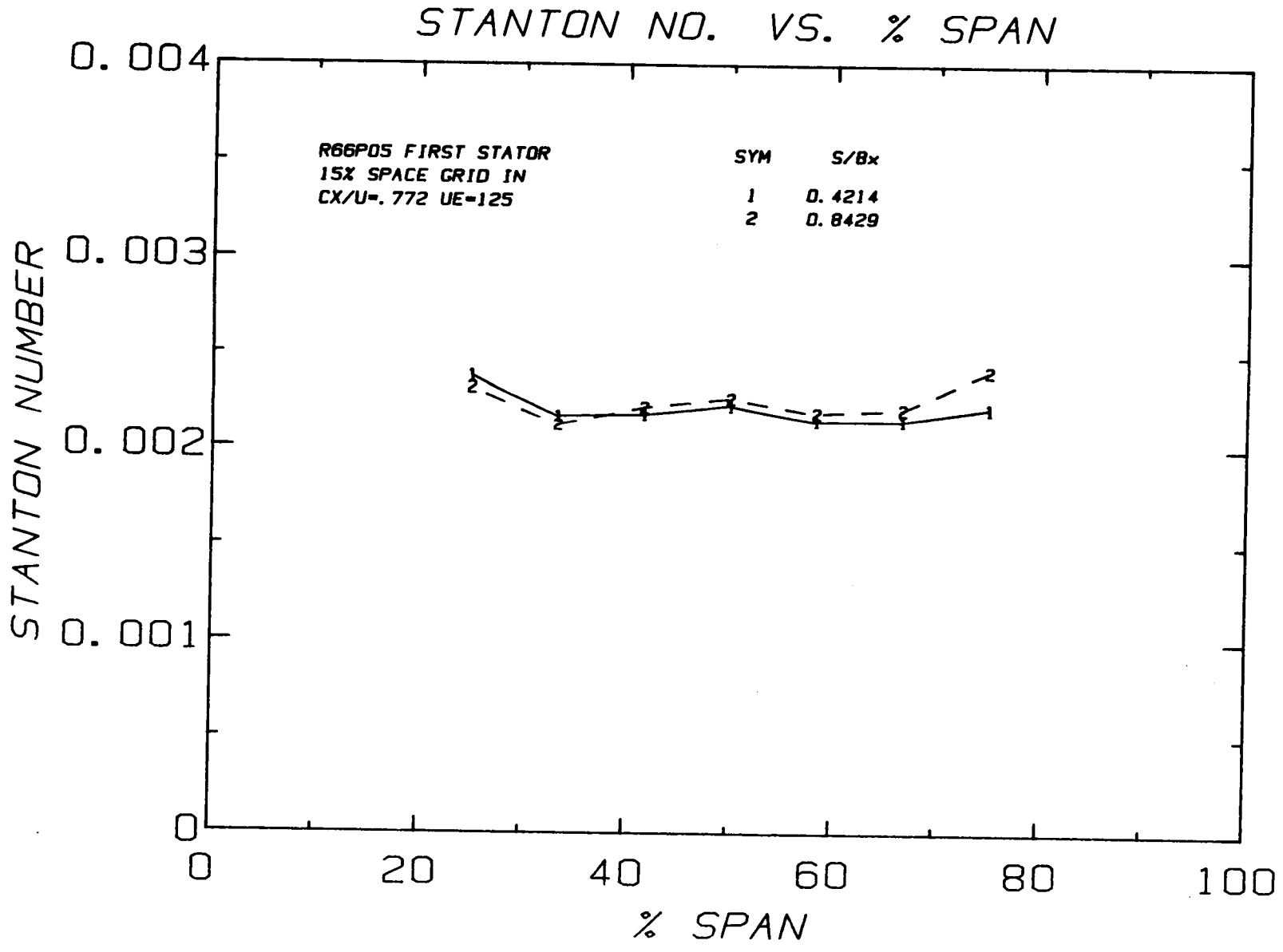
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001343	379.3	103.1	39.5
80	2.50	41.7	0.001322	373.4	103.8	39.9
81	2.00	33.3	0.001284	362.7	105.2	40.7
82	1.50	25.0	0.001319	372.5	103.9	40.0

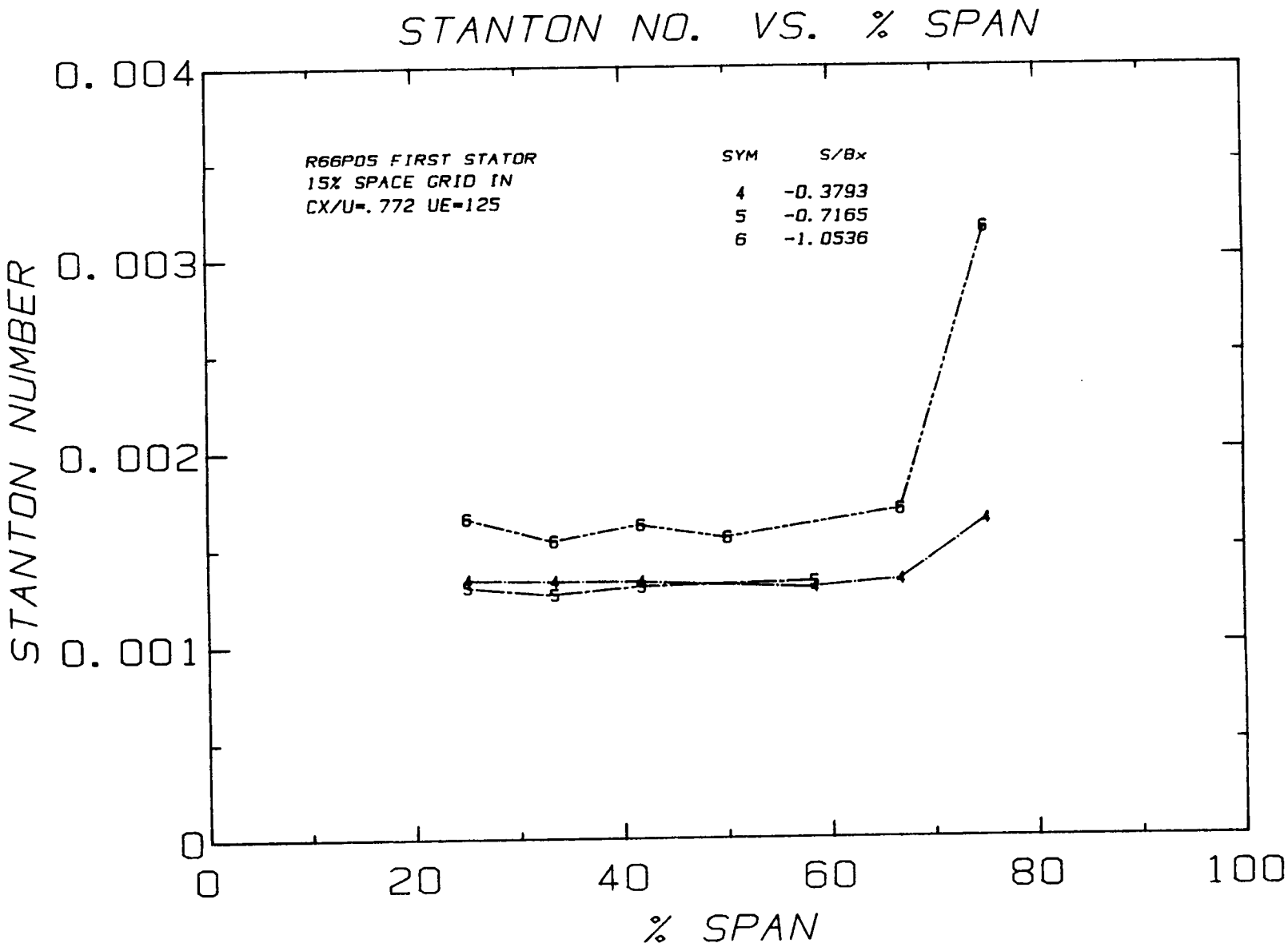
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.003240	915.1	75.1	24.0
87	4.00	66.7	0.001761	497.6	91.9	33.3
89	3.00	50.0	0.001593	450.1	95.6	35.3
90	2.50	41.7	0.001673	472.7	93.7	34.3
91	2.00	33.3	0.001575	444.9	96.0	35.6
92	1.50	25.0	0.001701	480.4	93.2	34.0


STANTON NO. VS. S/Bx
R66P05 FIRST STATOR
15% SPACE GRID IN
CX/U=.772 UE=125
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R66P05 FIRST STATOR
15% SPACE GRID IN
CX/U=.772 UE=125
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R66P05 FIRST STATOR
15% SPACE GRID IN
CX/U=.772 UE=125
SYM S/Bx
1 0.4214
2 0.8429
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R66P05 FIRST STATOR
15% SPACE GRID IN
CX/U=.772 UE=125
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.772 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 66 POINT: 5

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.0	124.6	0.0770	0.01467	0.1680	5.932
SI	12.2	38.0	1.2335	0.02537	1.9066	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002161	603.7	87.2	30.7
2	10.50	1.770	0.002336	652.6	85.5	29.7
3	10.00	1.686	0.002352	657.2	85.3	29.6
4	9.50	1.601	0.002415	674.7	84.6	29.2
5	9.00	1.517	0.002498	697.9	83.8	28.8
6	8.50	1.433	0.002740	765.6	81.5	27.5
11	7.50	1.264	0.002795	780.9	81.0	27.2
16	6.50	1.096	0.002869	801.6	80.4	26.9
17	6.00	1.011	0.002779	776.4	81.1	27.3
22	5.00	0.843	0.002264	632.5	86.9	30.5
26	4.50	0.759	0.001914	534.8	92.5	33.6
27	4.00	0.674	0.001706	476.6	96.8	36.0
29	3.00	0.506	0.002019	564.2	90.4	32.5
33	2.50	0.421	0.002226	622.0	87.2	30.7
37	2.00	0.337	0.002317	647.3	85.9	30.0
38	1.50	0.253	0.002524	705.2	83.4	28.6
41	0.45	0.076	0.003742	1045.5	74.0	23.3
42	0.40	0.067	0.003586	1001.9	74.8	23.8
51	-0.05	-0.008	0.003434	959.6	75.7	24.3
52	-0.10	-0.017	0.003209	896.5	77.2	25.1
53	-0.15	-0.025	0.002901	810.4	79.5	26.4
56	-0.30	-0.051	0.002535	708.3	83.0	28.3
57	-0.35	-0.059	0.002326	649.8	85.4	29.7
58	-0.40	-0.067	0.002274	635.3	86.1	30.1
45	0.25	0.042	0.003934	1099.1	73.0	22.8
46	0.20	0.034	0.003953	1104.4	72.9	22.7
47	0.15	0.025	0.003951	1103.7	73.0	22.8
49	0.05	0.008	0.003904	1090.8	73.2	22.9
50	0.00	0.000	0.003842	1073.3	73.5	23.0
54	-0.20	-0.034	0.002837	792.7	80.0	26.7
55	-0.25	-0.042	0.002603	727.1	82.3	27.9
59	-0.45	-0.076	0.002198	614.1	87.1	30.6
62	-1.00	-0.169	0.001694	473.4	96.5	35.9
63	-1.25	-0.211	0.001605	448.5	98.8	37.1
65	-1.75	-0.295	0.001429	399.1	103.8	39.9
74	-3.25	-0.548	0.001225	342.3	110.9	43.9
75	-3.75	-0.632	0.001281	357.8	108.6	42.6
83	-4.75	-0.801	0.001349	376.8	105.7	41.0
89	-6.25	-1.054	0.001551	433.4	99.3	37.4
93	-6.75	-1.138	0.001657	463.0	96.7	35.9

FIRST STATOR CX/U=.772 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 66 POINT: 5

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.0	124.6	0.0770	0.01467	0.1680	5.932
SI	12.2	38.0	1.2335	0.02537	1.9066	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002216	619.2	87.4	30.8
31	4.00	66.7	0.002145	599.3	88.4	31.3
32	3.50	58.3	0.002142	598.6	88.4	31.4
33	3.00	50.0	0.002226	622.0	87.2	30.7
34	2.50	41.7	0.002175	607.7	88.0	31.1
35	2.00	33.3	0.002165	604.9	88.1	31.2
36	1.50	25.0	0.002377	664.1	85.2	29.6

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002410	673.3	85.0	29.4
20	4.00	66.7	0.002208	617.0	87.7	30.9
21	3.50	58.3	0.002186	610.8	88.0	31.1
22	3.00	50.0	0.002264	632.5	86.9	30.5
23	2.50	41.7	0.002215	618.8	87.6	30.9
24	2.00	33.3	0.002115	590.9	89.1	31.7
25	1.50	25.0	0.002318	647.7	86.2	30.1

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003439	960.7	76.1	24.5
9	4.00	66.7	999.000000*********		999.0	537.2
11	3.00	50.0	0.002795	780.9	81.0	27.2
12	2.50	41.7	0.002795	781.0	81.0	27.2
13	2.00	33.3	0.002583	721.6	83.1	28.4
14	1.50	25.0	0.003050	852.1	78.8	26.0

S/BX = -0.37930

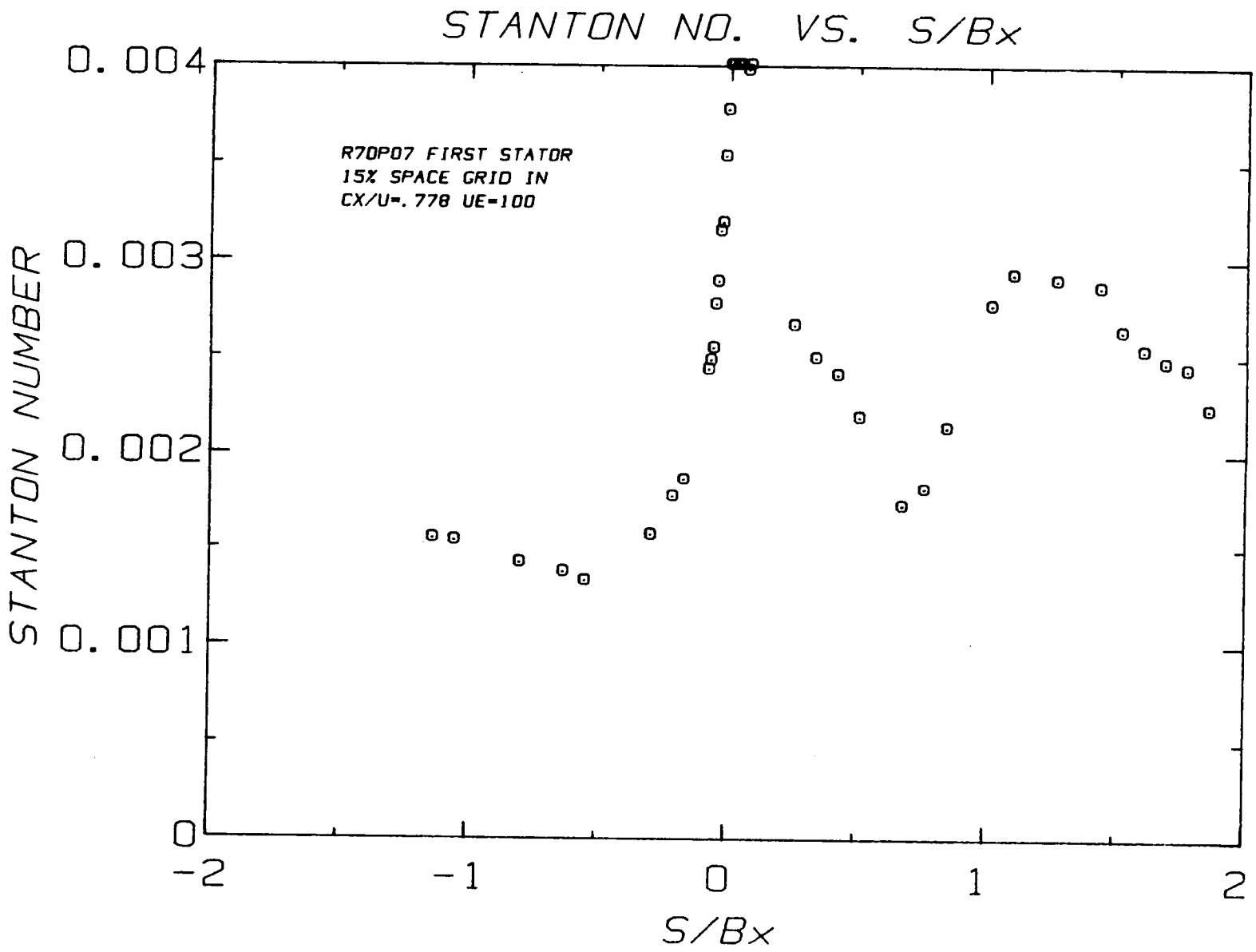
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001638	457.6	97.9	36.6
67	4.00	66.7	0.001332	372.1	107.1	41.7
68	3.50	58.3	0.001293	361.3	108.5	42.5
70	2.50	41.7	0.001328	370.9	107.2	41.8
71	2.00	33.3	0.001330	371.7	107.1	41.7
72	1.50	25.0	0.001340	374.3	106.8	41.5

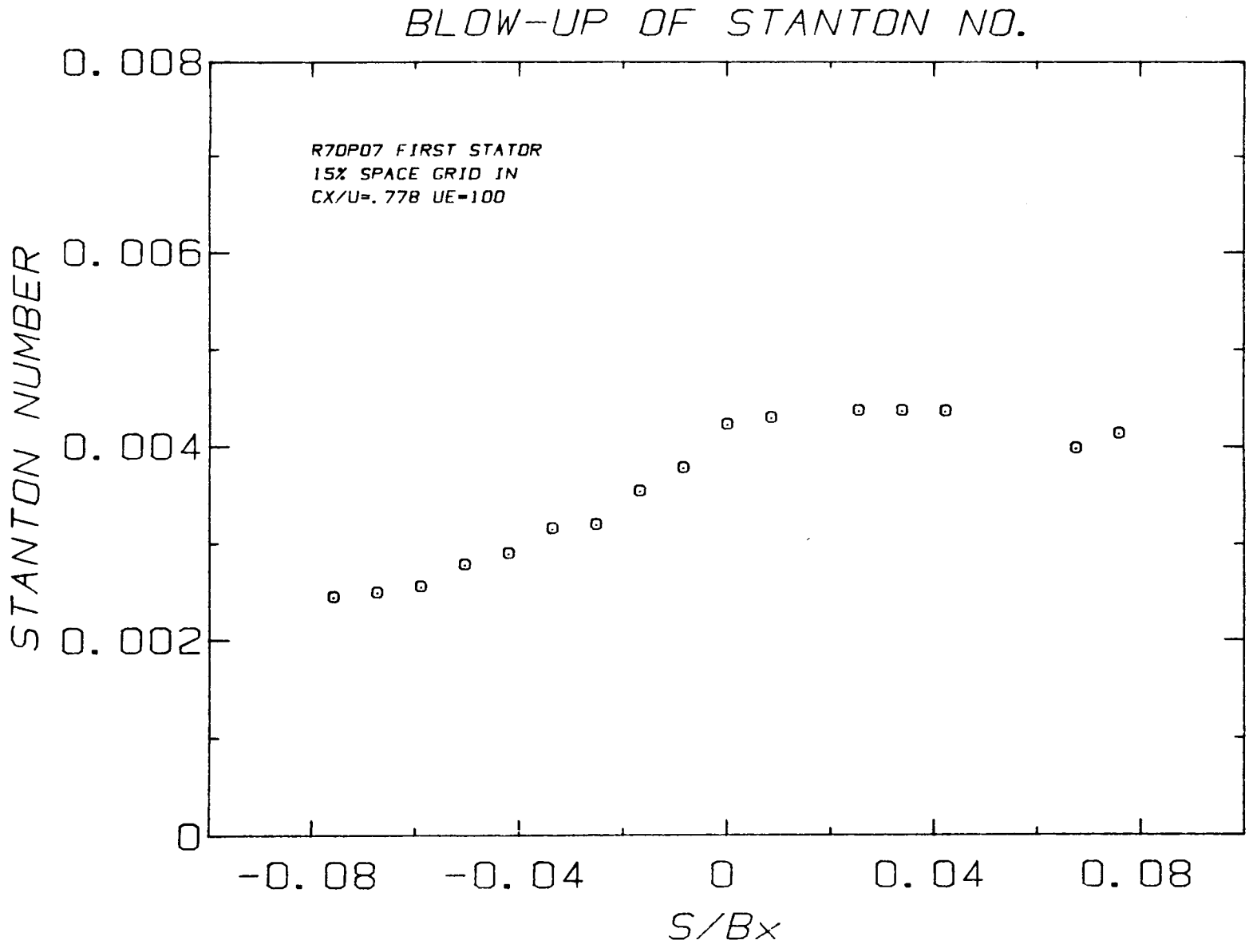
S/BX = -0.71645

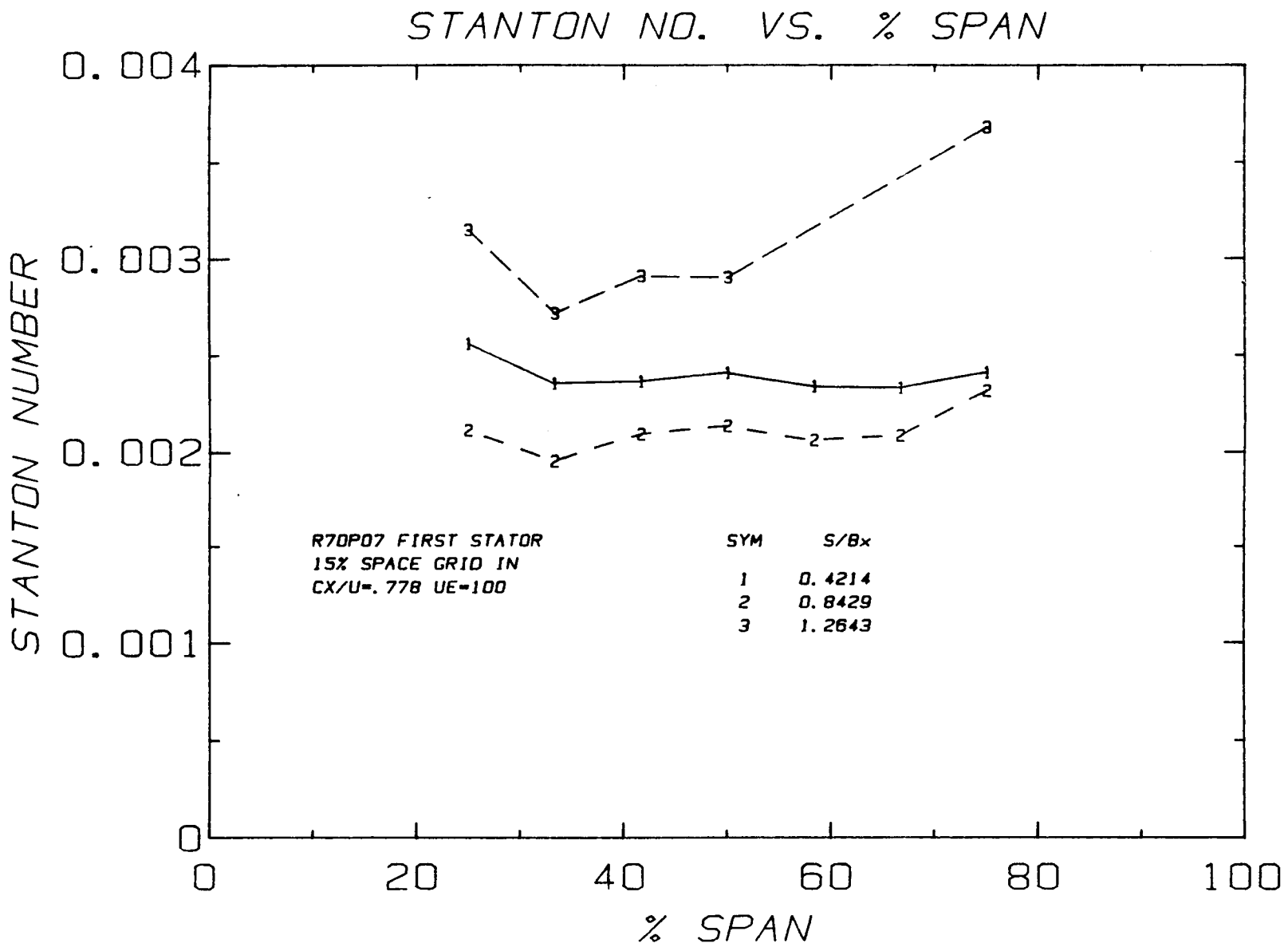
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001323	369.6	106.9	41.6
80	2.50	41.7	0.001300	363.2	107.7	42.1
81	2.00	33.3	0.001260	352.1	109.2	42.9
82	1.50	25.0	0.001301	363.4	107.7	42.0

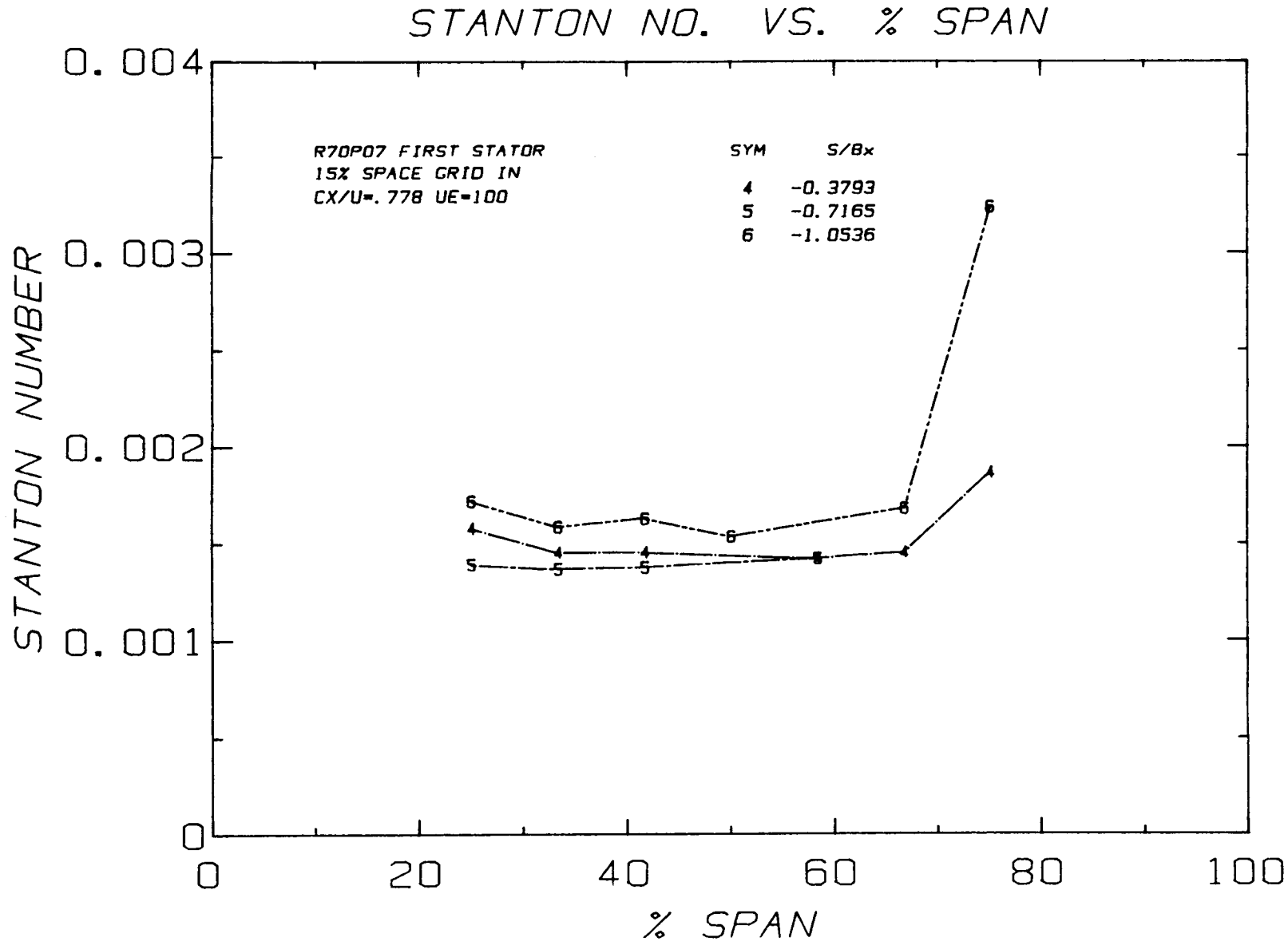
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.003149	879.9	77.5	25.3
87	4.00	66.7	0.001692	472.7	95.9	35.5
89	3.00	50.0	0.001551	433.4	99.3	37.4
90	2.50	41.7	0.001618	452.1	97.6	36.5
91	2.00	33.3	0.001536	429.1	99.7	37.6
92	1.50	25.0	0.001655	462.3	96.8	36.0


STANTON NO. VS. S/Bx
R70P07 FIRST STATOR
15% SPACE GRID IN
CX/U=.778 UE=100
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R7DP07 FIRST STATOR
15% SPACE GRID IN
CX/U=.778 UE=100
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN
R70P07 FIRST STATOR
15% SPACE GRID IN
CX/U=.778 UE=100
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643


STANTON NO. VS. % SPAN
R70P07 FIRST STATOR
15% SPACE GRID IN
CX/U=.778 UE=100
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.778 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 7

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.1	100.2	0.0769	0.01464	0.1080	5.932
SI	11.7	30.5	1.2323	0.02532	1.2257	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002236	503.0	83.4	28.5
2	10.50	1.770	0.002445	549.9	81.6	27.6
3	10.00	1.686	0.002476	556.9	81.3	27.4
4	9.50	1.601	0.002539	571.2	80.7	27.1
5	9.00	1.517	0.002638	593.4	79.9	26.6
6	8.50	1.433	0.002865	644.4	78.0	25.6
11	7.50	1.264	0.002901	652.6	77.8	25.4
16	6.50	1.096	0.002929	658.9	77.6	25.3
17	6.00	1.011	0.002767	622.4	78.9	26.0
22	5.00	0.843	0.002135	480.1	85.8	29.9
26	4.50	0.759	0.001807	406.6	91.1	32.9
27	4.00	0.674	0.001716	386.0	92.9	33.8
29	3.00	0.506	0.002190	492.6	84.8	29.3
33	2.50	0.421	0.002409	541.9	82.1	27.8
37	2.00	0.337	0.002494	561.0	81.1	27.3
38	1.50	0.253	0.002665	599.5	79.4	26.3
41	0.45	0.076	0.004124	927.5	70.3	21.3
42	0.40	0.067	0.003971	893.2	70.9	21.6
51	-0.05	-0.008	0.003770	847.9	71.8	22.1
52	-0.10	-0.017	0.003530	793.9	73.0	22.8
53	-0.15	-0.025	0.003188	717.0	75.0	23.9
56	-0.30	-0.051	0.002770	623.0	78.1	25.6
57	-0.35	-0.059	0.002544	572.2	80.2	26.8
58	-0.40	-0.067	0.002481	557.9	80.8	27.1
45	0.25	0.042	0.004357	980.1	69.4	20.8
46	0.20	0.034	0.004361	981.0	69.4	20.8
47	0.15	0.025	0.004361	980.8	69.4	20.8
49	0.05	0.008	0.004289	964.6	69.7	20.9
50	0.00	0.000	0.004219	949.0	69.9	21.1
54	-0.20	-0.034	0.003145	707.4	75.3	24.1
55	-0.25	-0.042	0.002887	649.3	77.2	25.1
59	-0.45	-0.076	0.002433	547.3	81.3	27.4
62	-1.00	-0.169	0.001858	417.8	89.6	32.0
63	-1.25	-0.211	0.001763	396.5	91.4	33.0
65	-1.75	-0.295	0.001564	351.8	95.8	35.4
74	-3.25	-0.548	0.001326	298.2	102.3	39.0
75	-3.75	-0.632	0.001372	308.6	100.7	38.2
83	-4.75	-0.801	0.001419	319.3	98.9	37.2
89	-6.25	-1.054	0.001533	344.7	95.6	35.3
93	-6.75	-1.138	0.001544	347.2	95.3	35.2

FIRST STATOR CX/U=.778 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 7

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.1	100.2	0.0769	0.01464	0.1080	5.932
SI	11.7	30.5	1.2323	0.02532	1.2257	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002409	541.9	82.1	27.8
31	4.00	66.7	0.002331	524.2	83.0	28.3
32	3.50	58.3	0.002340	526.4	82.9	28.3
33	3.00	50.0	0.002409	541.9	82.1	27.8
34	2.50	41.7	0.002364	531.8	82.6	28.1
35	2.00	33.3	0.002355	529.6	82.7	28.2
36	1.50	25.0	0.002561	575.9	80.5	26.9

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002315	520.6	83.4	28.6
20	4.00	66.7	0.002083	468.5	86.5	30.3
21	3.50	58.3	0.002060	463.3	86.9	30.5
22	3.00	50.0	0.002135	480.1	85.8	29.9
23	2.50	41.7	0.002092	470.6	86.4	30.2
24	2.00	33.3	0.001953	439.4	88.6	31.4
25	1.50	25.0	0.002114	475.4	86.1	30.1

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.003679	827.6	72.8	22.7
11	3.00	50.0	0.002901	652.6	77.8	25.4
12	2.50	41.7	0.002908	654.1	77.7	25.4
13	2.00	33.3	0.002716	611.0	79.3	26.3
14	1.50	25.0	0.003149	708.3	75.9	24.4

S/BX = -0.37930

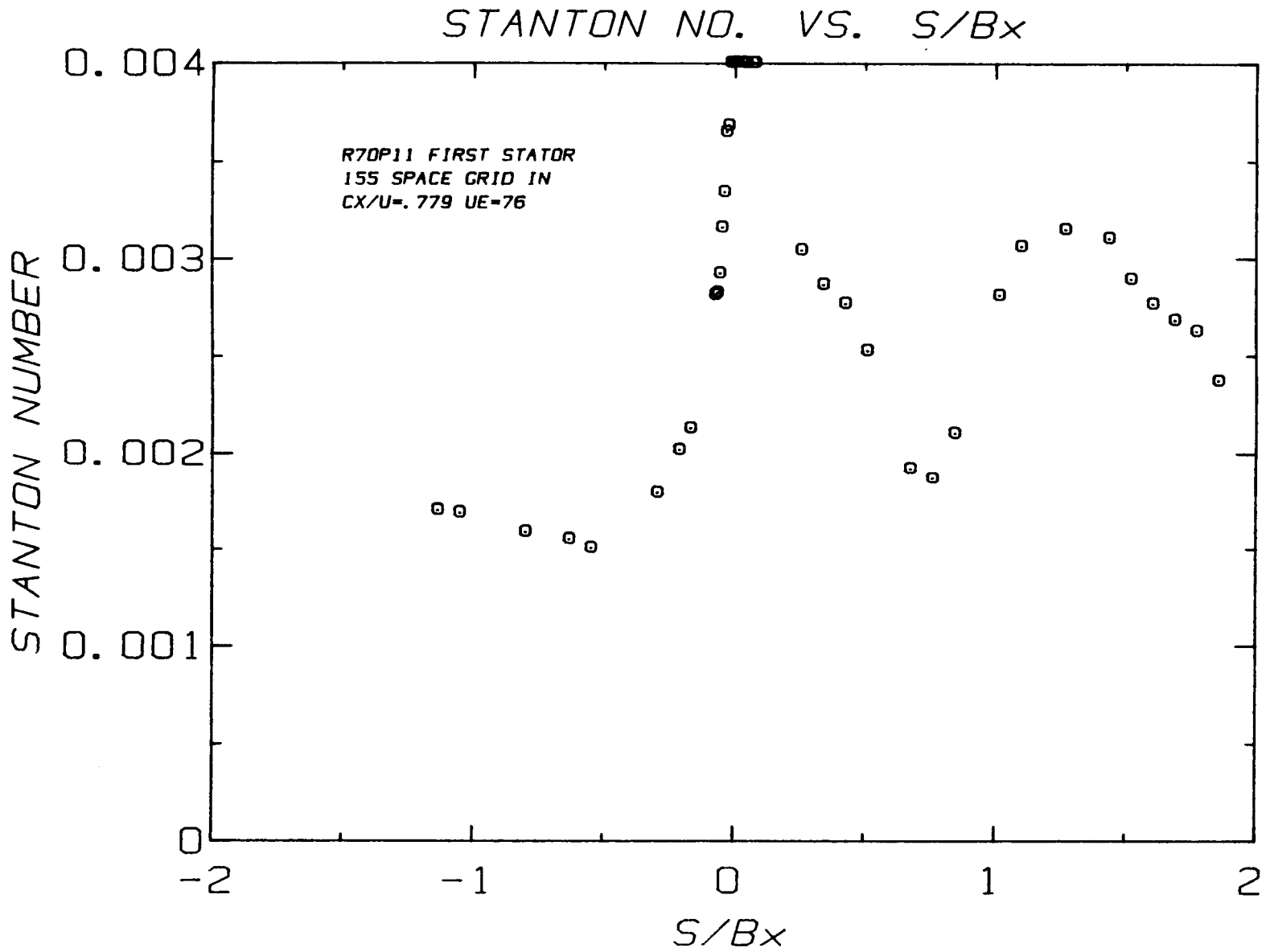
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.001863	419.0	89.5	31.9
67	4.00	66.7	0.001450	326.2	98.7	37.1
68	3.50	58.3	0.001419	319.1	99.6	37.6
70	2.50	41.7	0.001453	326.7	98.7	37.0
71	2.00	33.3	0.001451	326.3	98.7	37.1
72	1.50	25.0	0.001576	354.5	95.4	35.2

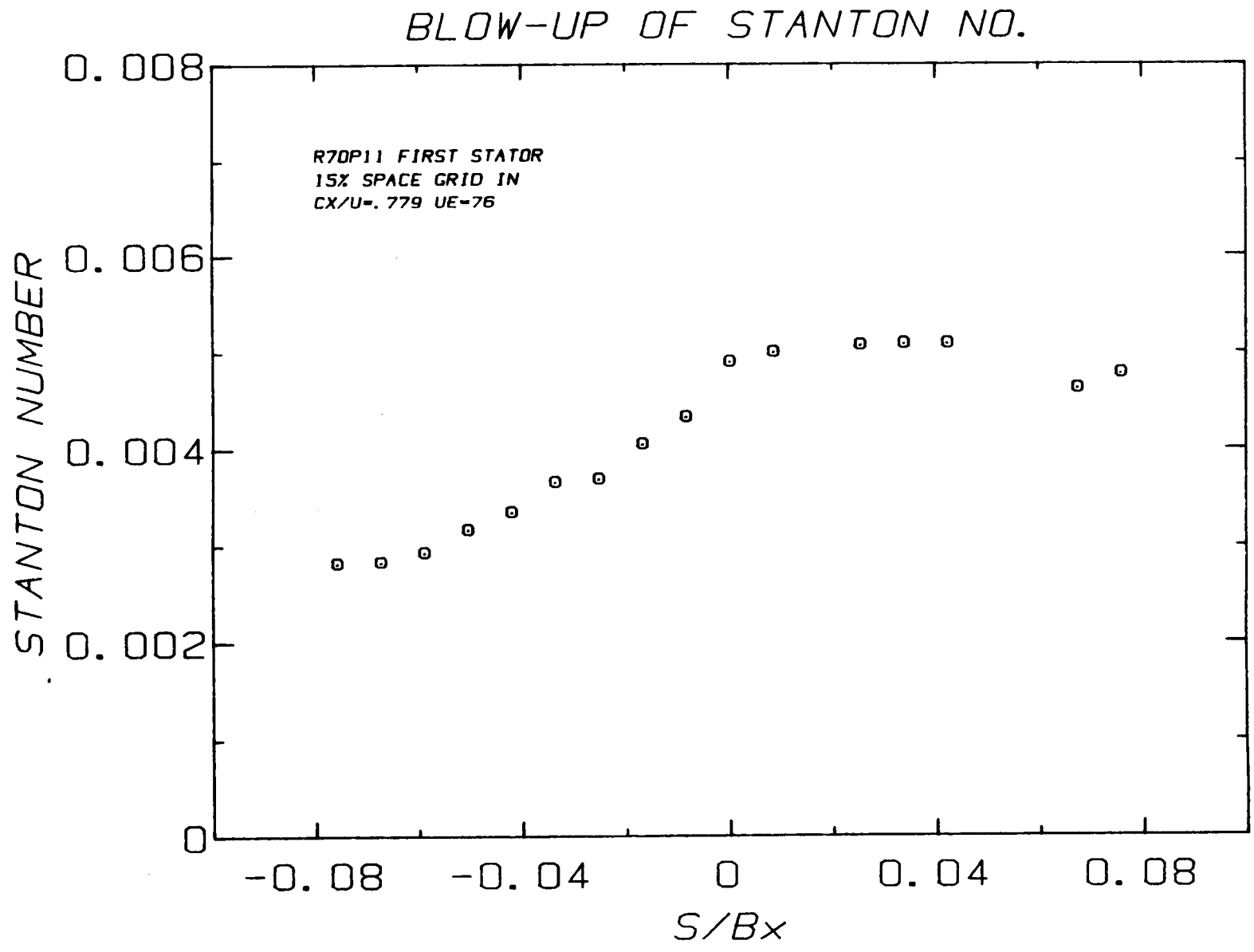
S/BX = -0.71645

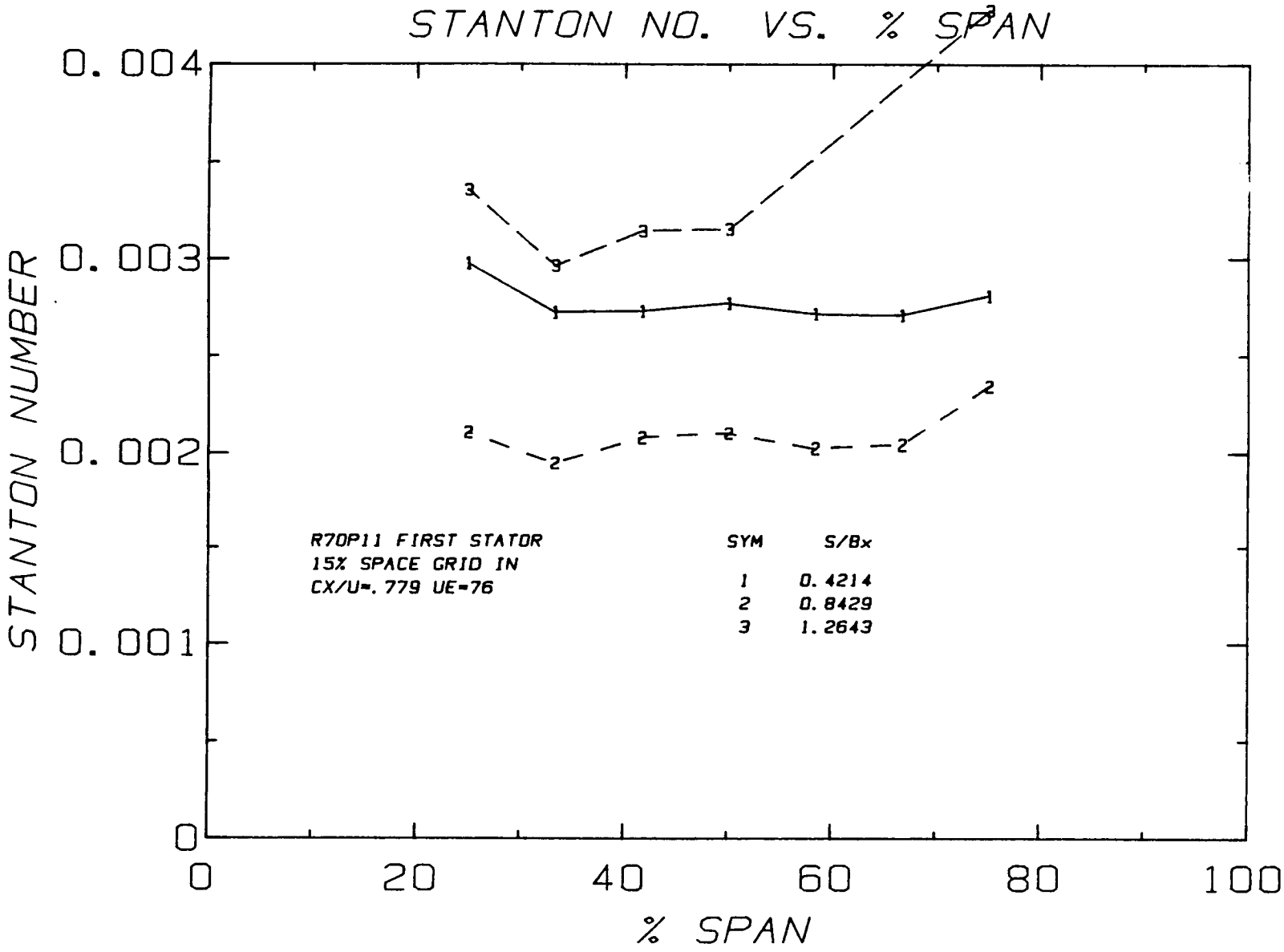
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001418	319.0	99.2	37.3
80	2.50	41.7	0.001373	308.7	100.5	38.1
81	2.00	33.3	0.001365	307.0	100.7	38.2
82	1.50	25.0	0.001388	312.1	100.1	37.8

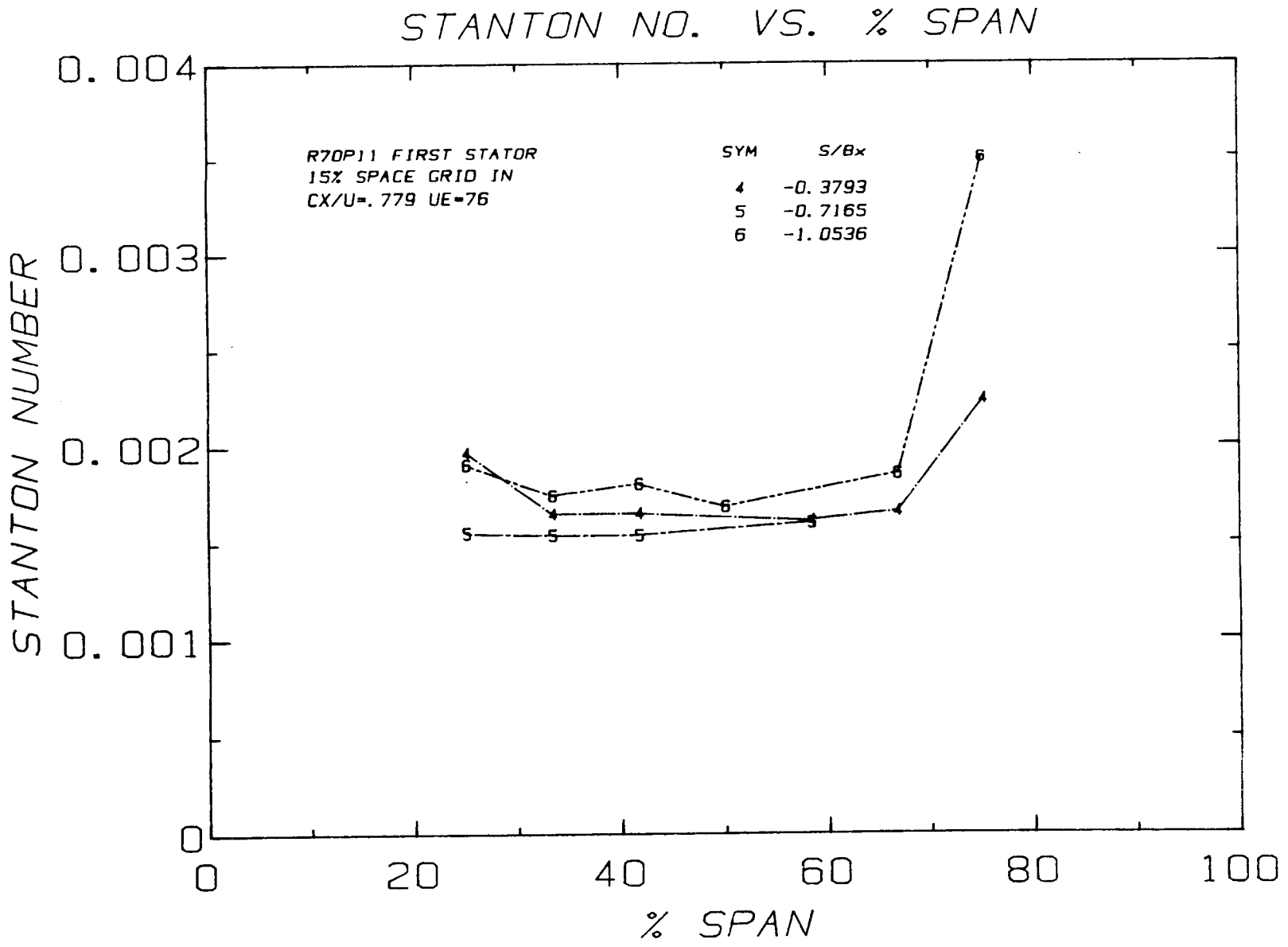
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.003233	727.2	74.7	23.7
87	4.00	66.7	0.001678	377.3	92.4	33.6
89	3.00	50.0	0.001533	344.7	95.6	35.3
90	2.50	41.7	0.001626	365.8	93.5	34.2
91	2.00	33.3	0.001583	356.0	94.5	34.7
92	1.50	25.0	0.001716	386.0	91.7	33.2


STANTON NO. VS. S/Bx
R70P11 FIRST STATOR
155 SPACE GRID IN
CX/U=.779 UE=76
STANTON NUMBER
0.004
0.003
0.002
0.001
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P11 FIRST STATOR
15% SPACE GRID IN
CX/U=.779 UE-76
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN
R70P11 FIRST STATOR
15% SPACE GRID IN
CX/U=.779 UE=76
SYM S/Bx
1 0.4214
2 0.8429
3 1.2643


STANTON NO. VS. % SPAN
R70P11 FIRST STATOR
15% SPACE GRID IN
CX/U=.779 UE=76
SYM S/Bx
4 -0.3793
5 -0.7165
6 -1.0536
STANTON NUMBER
0.004
0.003
0.002
0.001
0
0
20
40
60
80
100
% SPAN

FIRST STATOR CX/U=.779 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 11

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.5	76.0	0.0770	0.01468	0.1260	5.932
SI	12.5	23.2	1.2327	0.02539	1.4300	15.067

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	11.00	1.854	0.002370	403.3	90.8	32.7
2	10.50	1.770	0.002625	446.8	88.6	31.4
3	10.00	1.686	0.002683	456.6	88.1	31.1
4	9.50	1.601	0.002766	470.7	87.3	30.7
5	9.00	1.517	0.002893	492.4	86.2	30.1
6	8.50	1.433	0.003103	528.1	84.4	29.1
11	7.50	1.264	0.003149	535.9	84.0	28.9
16	6.50	1.096	0.003062	521.0	84.9	29.4
17	6.00	1.011	0.002809	478.0	87.4	30.8
22	5.00	0.843	0.002099	357.2	97.2	36.2
26	4.50	0.759	0.001864	317.1	102.0	38.9
27	4.00	0.674	0.001917	326.2	100.8	38.2
29	3.00	0.506	0.002526	429.8	90.4	32.5
33	2.50	0.421	0.002768	471.0	87.5	30.8
37	2.00	0.337	0.002866	487.7	86.4	30.2
38	1.50	0.253	0.003043	517.9	84.6	29.2
41	0.45	0.076	0.004769	811.5	74.0	23.3
42	0.40	0.067	0.004613	785.1	74.6	23.7
51	-0.05	-0.008	0.004322	735.4	75.9	24.4
52	-0.10	-0.017	0.004043	688.0	77.3	25.2
53	-0.15	-0.025	0.003682	626.6	79.4	26.3
56	-0.30	-0.051	0.003157	537.2	83.2	28.4
57	-0.35	-0.059	0.002922	497.2	85.3	29.6
58	-0.40	-0.067	0.002823	480.4	86.3	30.2
45	0.25	0.042	0.005080	864.4	72.9	22.7
46	0.20	0.034	0.005079	864.3	72.9	22.7
47	0.15	0.025	0.005062	861.4	72.9	22.7
49	0.05	0.008	0.004992	849.4	73.2	22.9
50	0.00	0.000	0.004892	832.5	73.5	23.1
54	-0.20	-0.034	0.003649	621.0	79.6	26.4
55	-0.25	-0.042	0.003340	568.4	81.7	27.6
59	-0.45	-0.076	0.002811	478.3	86.4	30.2
62	-1.00	-0.169	0.002126	361.8	96.0	35.6
63	-1.25	-0.211	0.002017	343.2	98.1	36.7
65	-1.75	-0.295	0.001785	303.7	103.1	39.5
74	-3.25	-0.548	0.001503	255.7	110.6	43.6
75	-3.75	-0.632	0.001549	263.6	109.0	42.8
83	-4.75	-0.801	0.001587	270.0	107.3	41.8
89	-6.25	-1.054	0.001684	286.5	104.2	40.1
93	-6.75	-1.138	0.001697	288.8	103.8	39.9

FIRST STATOR CX/U=.779 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 11

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.5	76.0	0.0770	0.01468	0.1260	5.932
SI	12.5	23.2	1.2327	0.02539	1.4300	15.067

FOR UNITS SEE NOMENCLATURE

S/BX = 0.42144

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.50	75.0	0.002805	477.4	87.1	30.6
31	4.00	66.7	0.002707	460.6	88.2	31.2
32	3.50	58.3	0.002715	462.0	88.1	31.2
33	3.00	50.0	0.002768	471.0	87.5	30.8
34	2.50	41.7	0.002727	464.1	88.0	31.1
35	2.00	33.3	0.002721	463.0	88.0	31.1
36	1.50	25.0	0.002975	506.3	85.4	29.6

S/BX = 0.84289

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
19	4.50	75.0	0.002339	398.1	93.3	34.0
20	4.00	66.7	0.002039	347.1	98.4	36.9
21	3.50	58.3	0.002023	344.3	98.7	37.0
22	3.00	50.0	0.002099	357.2	97.2	36.2
23	2.50	41.7	0.002075	353.2	97.7	36.5
24	2.00	33.3	0.001944	330.8	100.3	37.9
25	1.50	25.0	0.002104	358.0	97.2	36.2

S/BX = 1.26433

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
8	4.50	75.0	0.004274	727.2	76.7	24.9
11	3.00	50.0	0.003149	535.9	84.0	28.9
12	2.50	41.7	0.003139	534.1	84.1	29.0
13	2.00	33.3	0.002960	503.7	85.8	29.9
14	1.50	25.0	0.003354	570.7	82.4	28.0

S/BX = -0.37930

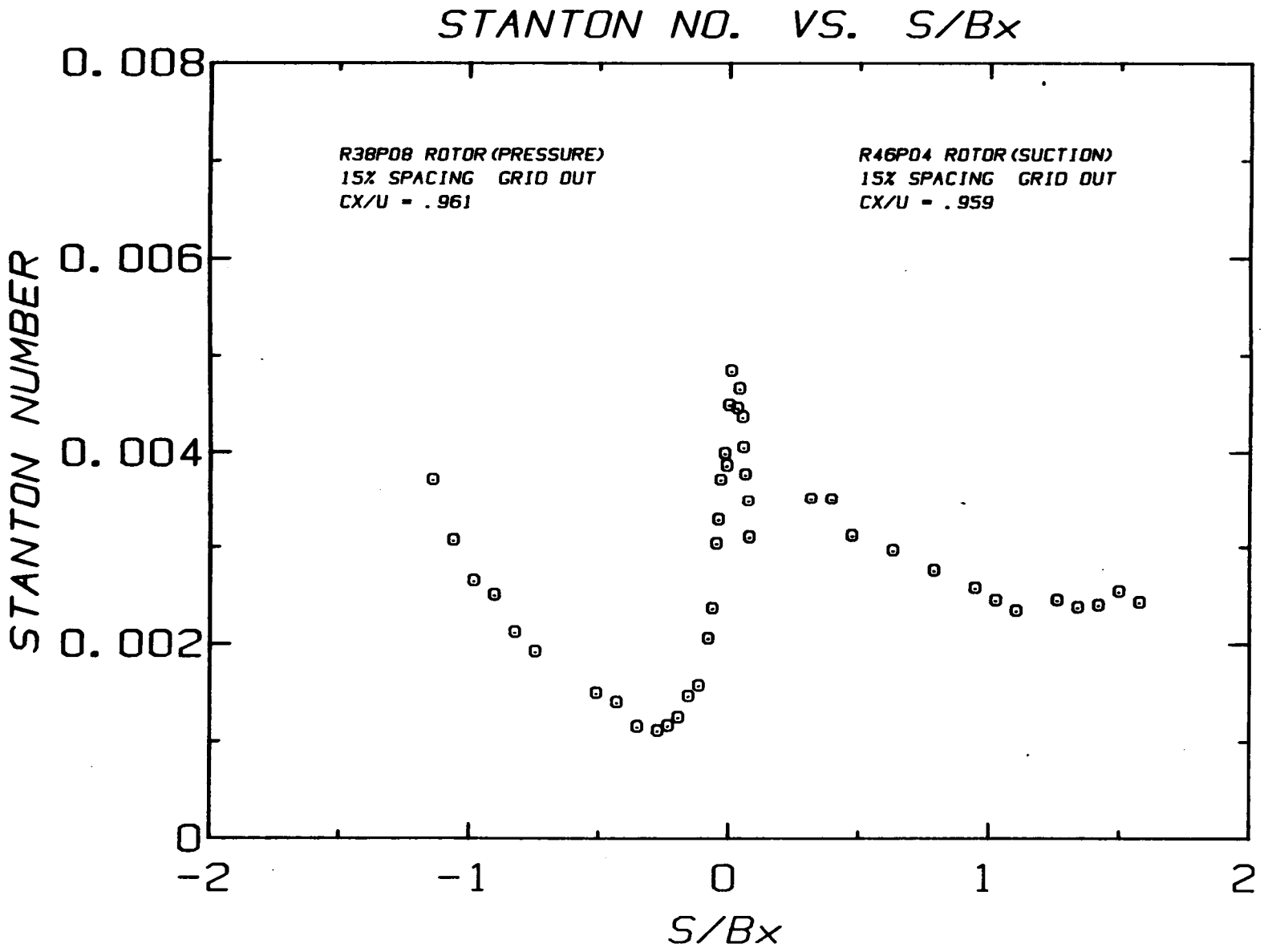
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	4.50	75.0	0.002238	380.9	94.2	34.5
67	4.00	66.7	0.001657	282.1	106.3	41.3
68	3.50	58.3	0.001611	274.2	107.6	42.0
70	2.50	41.7	0.001652	281.1	106.5	41.4
71	2.00	33.3	0.001649	280.6	106.6	41.4
72	1.50	25.0	0.001969	335.1	99.0	37.2

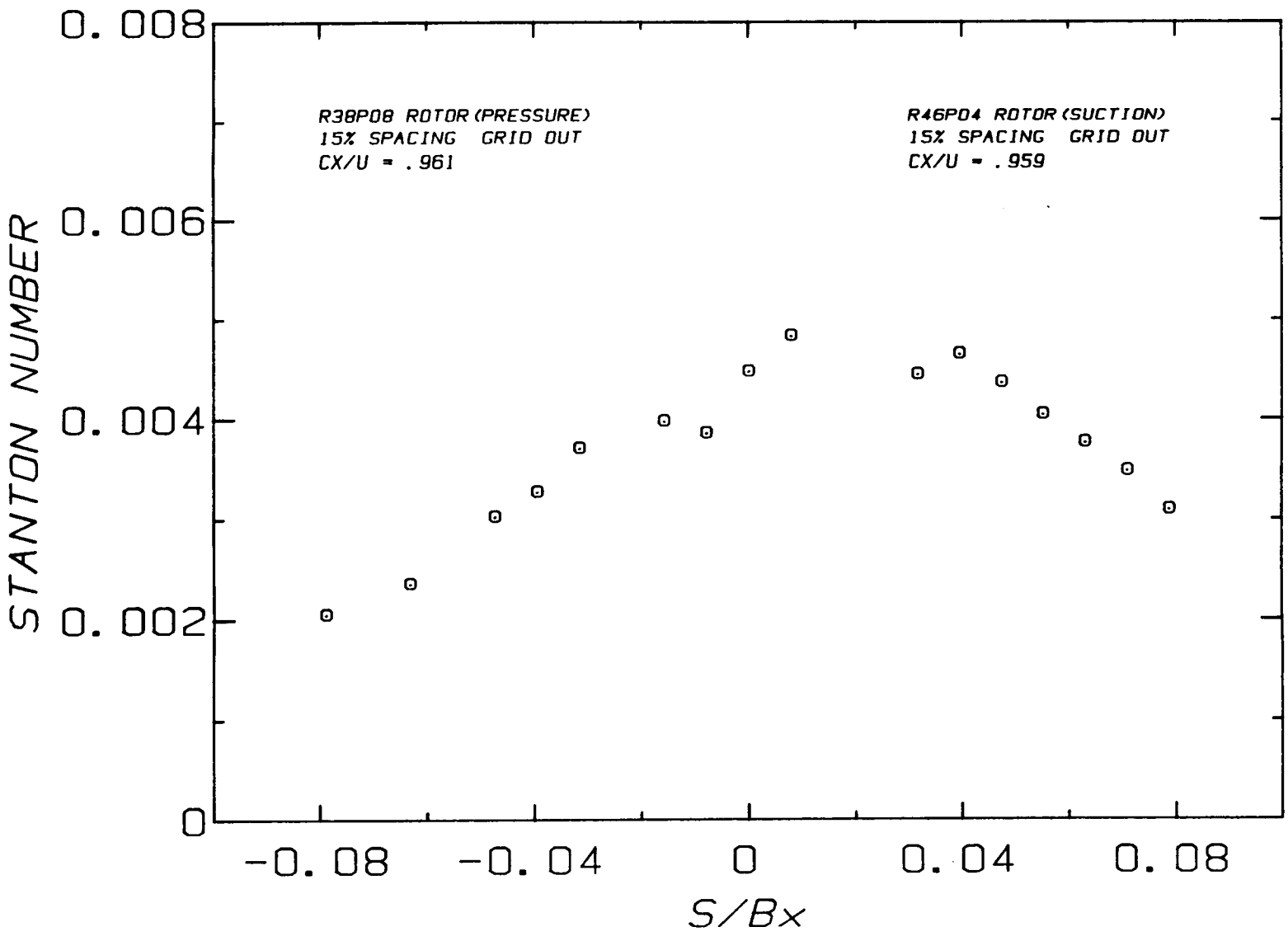
S/BX = -0.71645

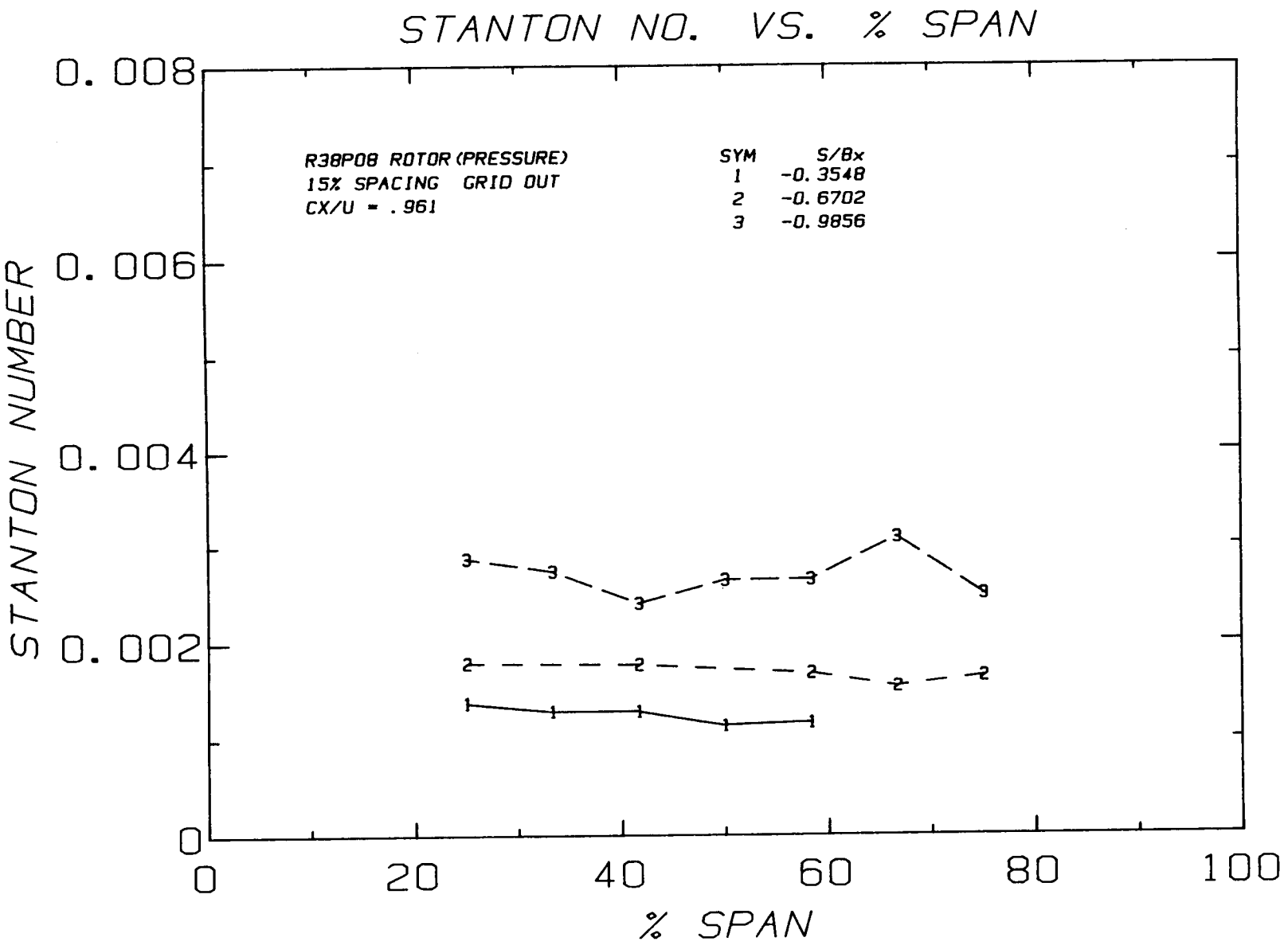
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
78	3.50	58.3	0.001599	272.0	107.3	41.8
80	2.50	41.7	0.001538	261.7	109.1	42.8
81	2.00	33.3	0.001539	261.9	109.0	42.8
82	1.50	25.0	0.001551	263.9	108.7	42.6

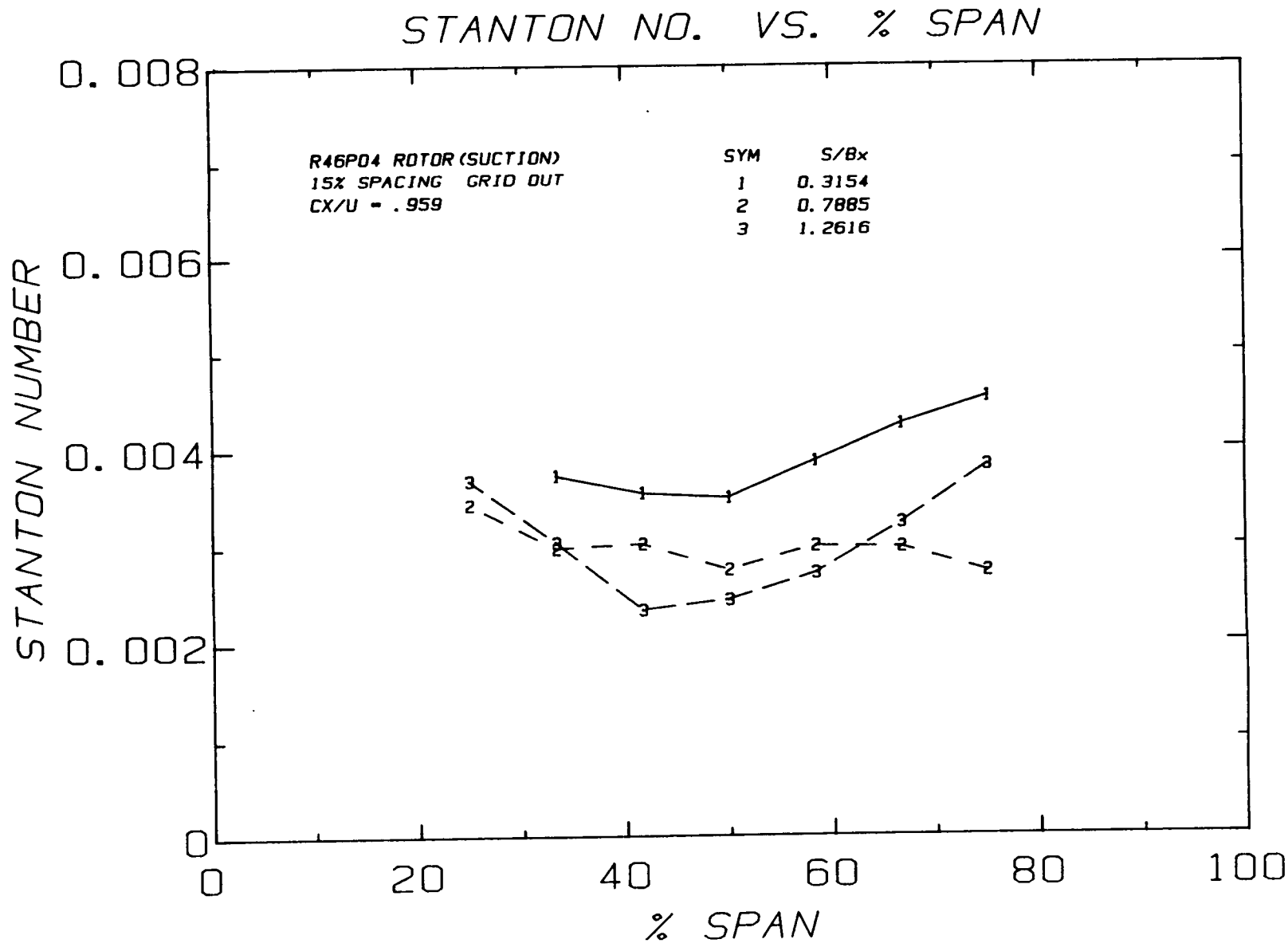
S/BX = -1.05361

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
86	4.50	75.0	0.003498	595.3	80.5	26.9
87	4.00	66.7	0.001853	315.3	100.3	38.0
89	3.00	50.0	0.001684	286.5	104.2	40.1
90	2.50	41.7	0.001803	306.9	101.4	38.6
91	2.00	33.3	0.001743	296.7	102.8	39.3
92	1.50	25.0	0.001905	324.1	99.3	37.4


STANTON NO. VS. S/Bx
R38P08 ROTOR (PRESSURE)
15% SPACING GRID OUT
CX/U = .961
R46P04 ROTOR (SUCTION)
15% SPACING GRID OUT
CX/U = .959
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R38P08 ROTOR (PRESSURE)
15% SPACING GRID OUT
CX/U = .961
R46P04 ROTOR (SUCTION)
15% SPACING GRID OUT
CX/U = .959
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R38P08 ROTOR (PRESSURE)
15% SPACING GRID OUT
CX/U = .961
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R46P04 ROTOR (SUCTION)
15% SPACING GRID OUT
CX/U = .959
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR CX/U=.961 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 38 POINT: 8

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.7	176.4	0.0744	0.01468	0.2100	6.341
SI	12.6	53.8	1.1913	0.02539	2.3833	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003472	1417.0	73.8	23.2
42	0.30	0.047	0.004360	1779.0	70.0	21.1
59	-0.75	-0.118	0.001562	637.6	95.9	35.5
60	-1.00	-0.158	0.001450	591.8	98.9	37.2
61	-1.25	-0.197	0.001234	503.8	106.2	41.2
62	-1.50	-0.237	0.001150	469.2	109.8	43.2
63	-1.75	-0.276	0.001100	448.9	112.1	44.5
67	-2.25	-0.355	0.001143	466.6	110.1	43.4
71	-2.75	-0.434	0.001390	567.1	100.9	38.3
72	-3.25	-0.513	0.001486	606.2	98.1	36.7
81	-4.75	-0.749	0.001914	781.1	88.8	31.5
82	-5.25	-0.828	0.002113	862.2	85.7	29.8
83	-5.75	-0.907	0.002497	1018.8	81.2	27.3
87	-6.25	-0.986	0.002643	1078.6	79.8	26.5
91	-6.75	-1.065	0.003064	1250.2	76.5	24.7
92	-7.25	-1.143	0.003710	1514.0	72.8	22.7

ROTOR CX/U=.961 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 38 POINT: 8

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.7	176.4	0.0744	0.01468	0.2100	6.341
SI	12.6	53.8	1.1913	0.02539	2.3833	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001171	477.9	108.9	42.7
67	3.00	50.0	0.001143	466.6	110.1	43.4
68	2.50	41.7	0.001294	528.0	104.1	40.1
69	2.00	33.3	0.001295	528.4	104.1	40.0
70	1.50	25.0	0.001380	563.3	101.2	38.4

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001647	672.2	94.0	34.4
75	4.00	66.7	0.001540	628.5	96.5	35.9
76	3.50	58.3	0.001685	687.6	93.2	34.0
78	2.50	41.7	0.001776	724.8	91.3	32.9
80	1.50	25.0	0.001795	732.4	90.9	32.7

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002494	1017.6	81.2	27.3
85	4.00	66.7	0.003084	1258.4	76.3	24.6
86	3.50	58.3	0.002648	1080.6	79.7	26.5
87	3.00	50.0	0.002643	1078.6	79.8	26.5
88	2.50	41.7	0.002405	981.5	82.1	27.9
89	2.00	33.3	0.002740	1118.2	78.9	26.1
90	1.50	25.0	0.002873	1172.3	77.8	25.5

ROTOR(SUCTION) CX/U=.959 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 46 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.0	175.3	0.0745	0.01464	0.2680	6.341
SI	11.7	53.4	1.1937	0.02532	3.0415	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002420	985.9	87.7	30.9
2	9.50	1.498	0.002535	1032.7	86.3	30.2
3	9.00	1.419	0.002390	973.9	88.4	31.3
4	8.50	1.340	0.002368	964.7	88.9	31.6
8	8.00	1.262	0.002444	995.7	87.8	31.0
13	7.00	1.104	0.002333	950.6	89.5	31.9
14	6.50	1.025	0.002442	995.1	87.9	31.1
15	6.00	0.946	0.002570	1047.2	86.3	30.1
20	5.00	0.789	0.002751	1121.0	84.1	29.0
25	4.00	0.631	0.002957	1204.7	82.0	27.8
27	3.00	0.473	0.003109	1266.8	80.6	27.0
28	2.50	0.394	0.003498	1425.0	77.6	25.3
32	2.00	0.315	0.003501	1426.5	77.6	25.3
38	0.50	0.079	0.003091	1259.3	80.6	27.0
40	0.40	0.063	0.003766	1534.2	75.8	24.3
41	0.35	0.055	0.004044	1647.5	74.3	23.5
43	0.25	0.039	0.004650	1894.5	71.5	22.0
44	0.20	0.032	0.004443	1810.2	72.4	22.4
47	0.05	0.008	0.004831	1968.4	70.9	21.6
48	0.00	0.000	0.004474	1822.7	72.3	22.4
49	-0.05	-0.008	0.003855	1570.6	75.3	24.0
50	-0.10	-0.016	0.003977	1620.2	74.6	23.7
52	-0.20	-0.032	0.003706	1510.1	76.1	24.5
53	-0.25	-0.039	0.003269	1332.1	79.1	26.2
54	-0.30	-0.047	0.003023	1231.6	81.2	27.3
56	-0.40	-0.063	0.002354	959.1	88.9	31.6
58	-0.50	-0.079	0.002044	832.9	94.1	34.5

ROTOR(SUCTION) CX/U=.959 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 46 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.0	175.3	0.0745	0.01464	0.2680	6.341
SI	11.7	53.4	1.1937	0.02532	3.0415	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

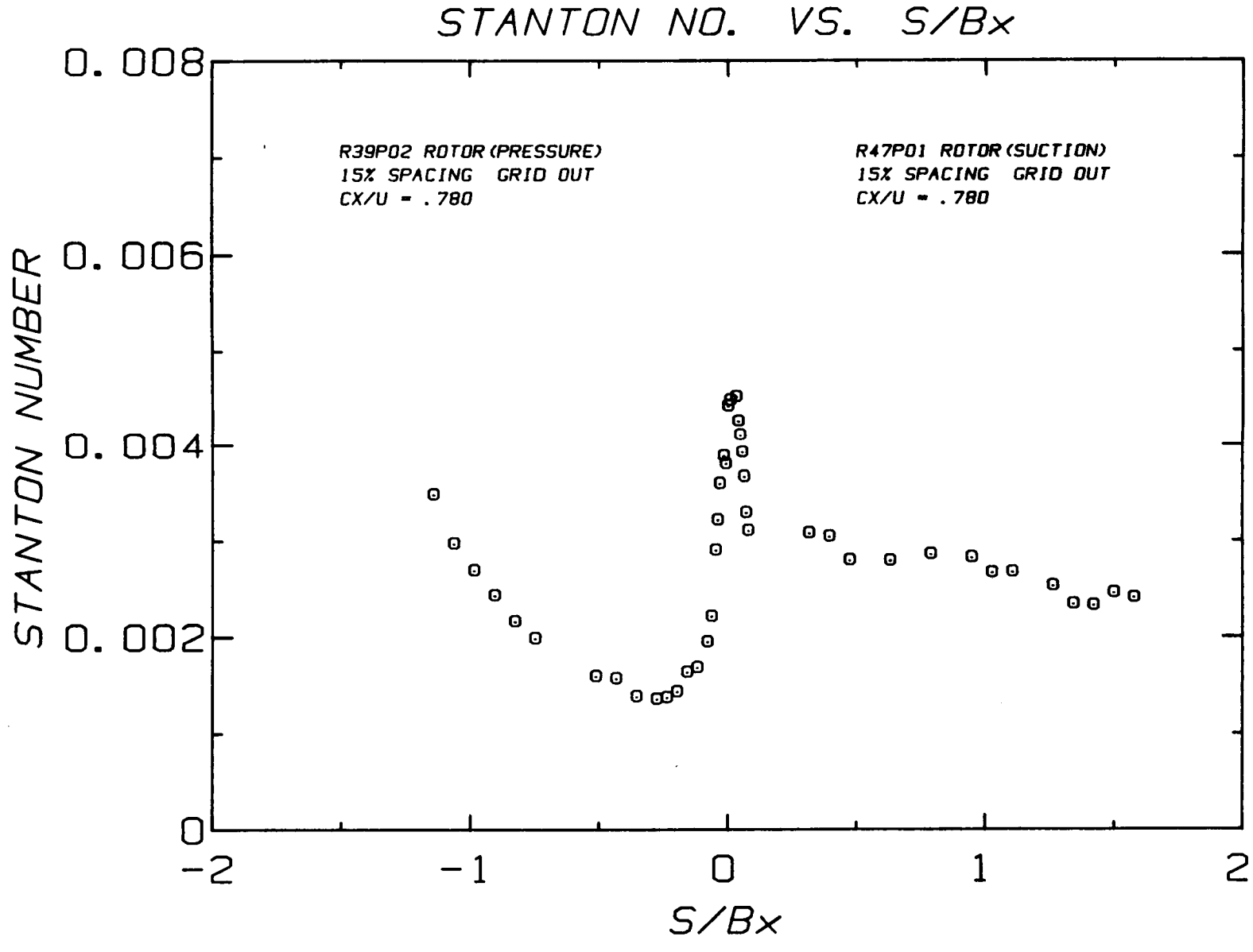
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
29	4.50	75.0	0.004529	1845.4	72.1	22.3
30	4.00	66.7	0.004250	1731.4	73.3	23.0
31	3.50	58.3	0.003874	1578.5	75.2	24.0
32	3.00	50.0	0.003501	1426.5	77.6	25.3
33	2.50	41.7	0.003552	1447.4	77.2	25.1
34	2.00	33.3	0.003732	1520.6	76.1	24.5

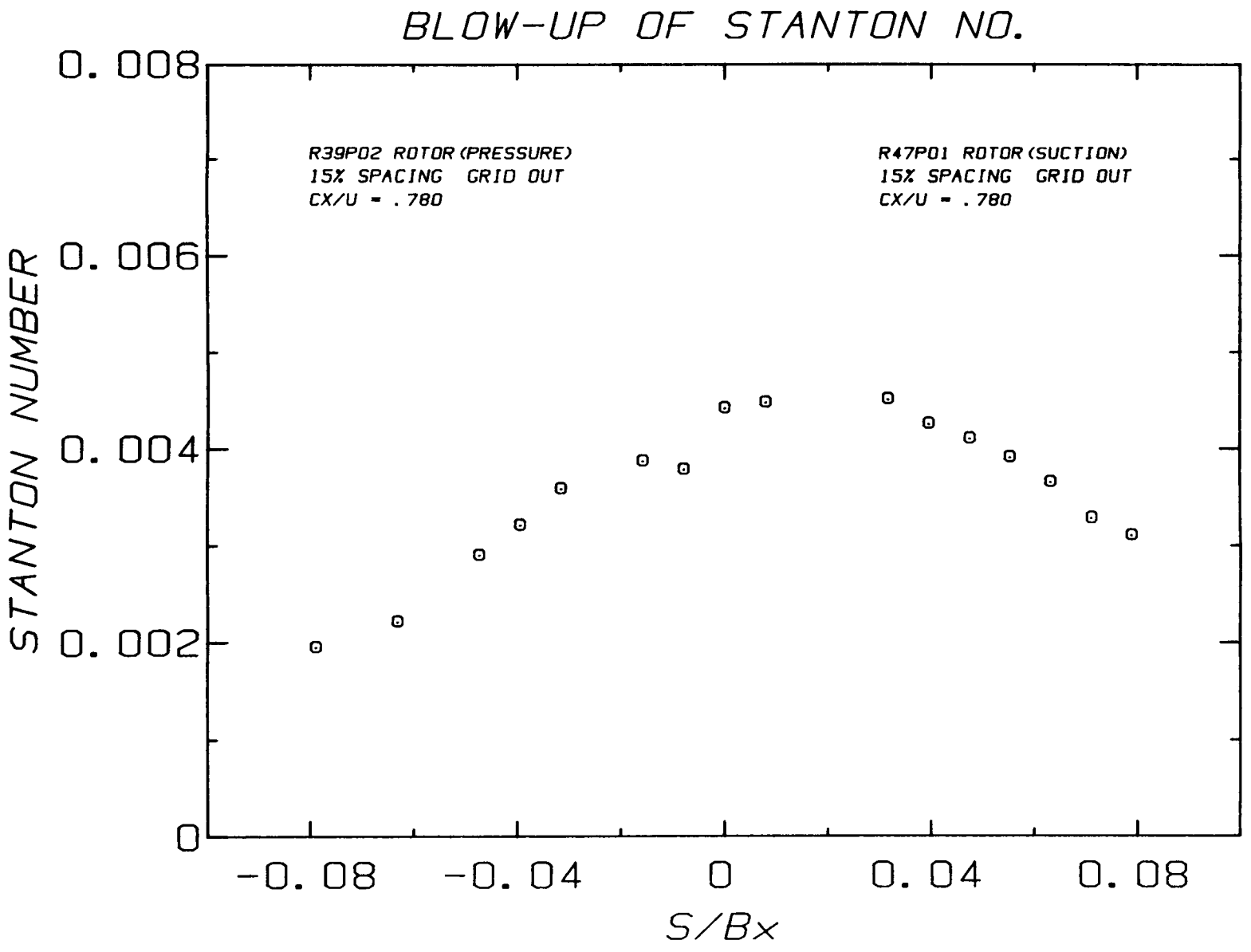
S/BX = 0.78852

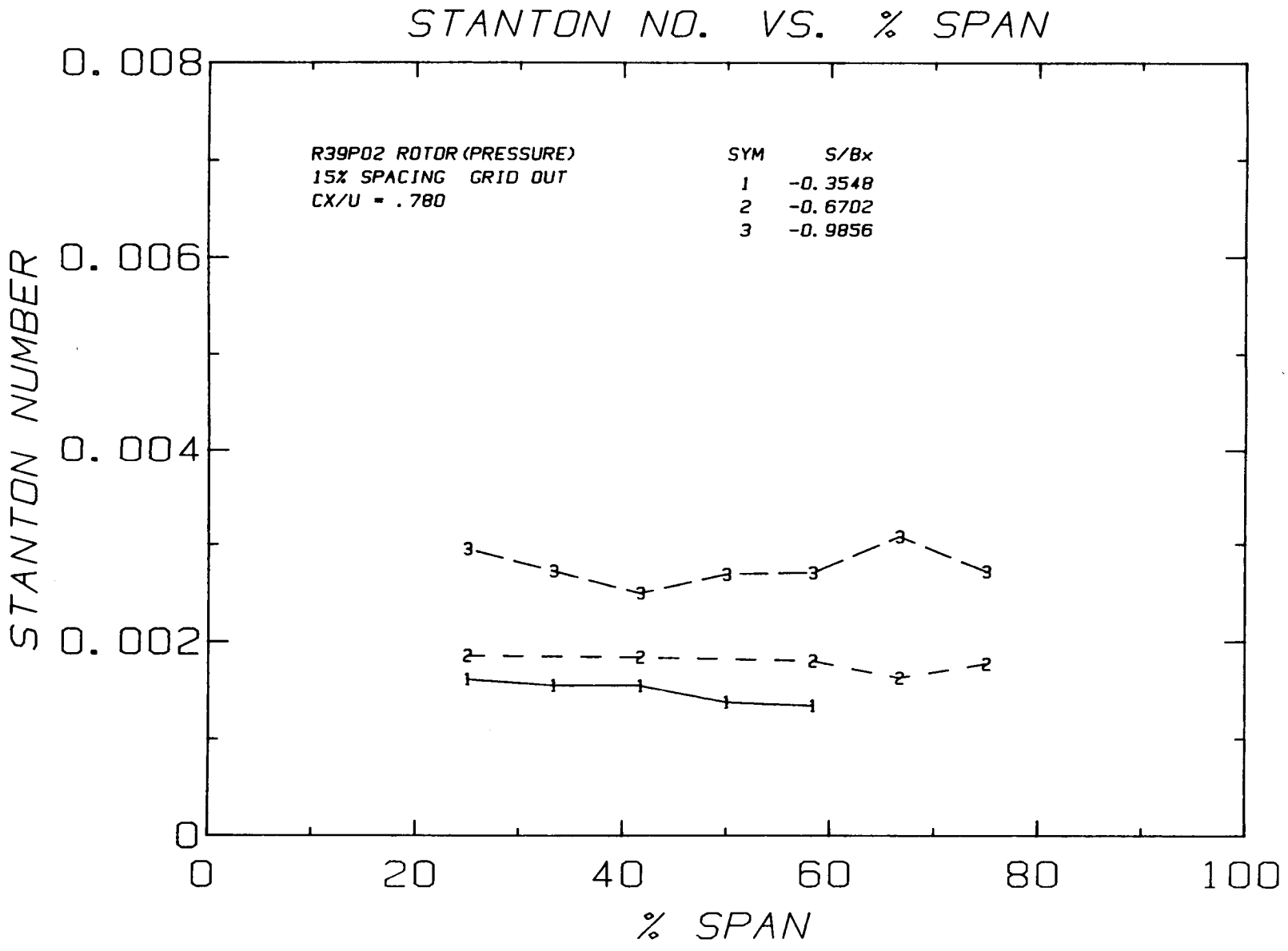
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.002729	1111.8	84.4	29.1
18	4.00	66.7	0.002986	1216.8	81.7	27.6
19	3.50	58.3	0.003001	1222.6	81.6	27.6
20	3.00	50.0	0.002751	1121.0	84.1	29.0
21	2.50	41.7	0.003025	1232.6	81.4	27.4
22	2.00	33.3	0.002979	1213.8	81.8	27.7
23	1.50	25.0	0.003436	1400.0	78.1	25.6

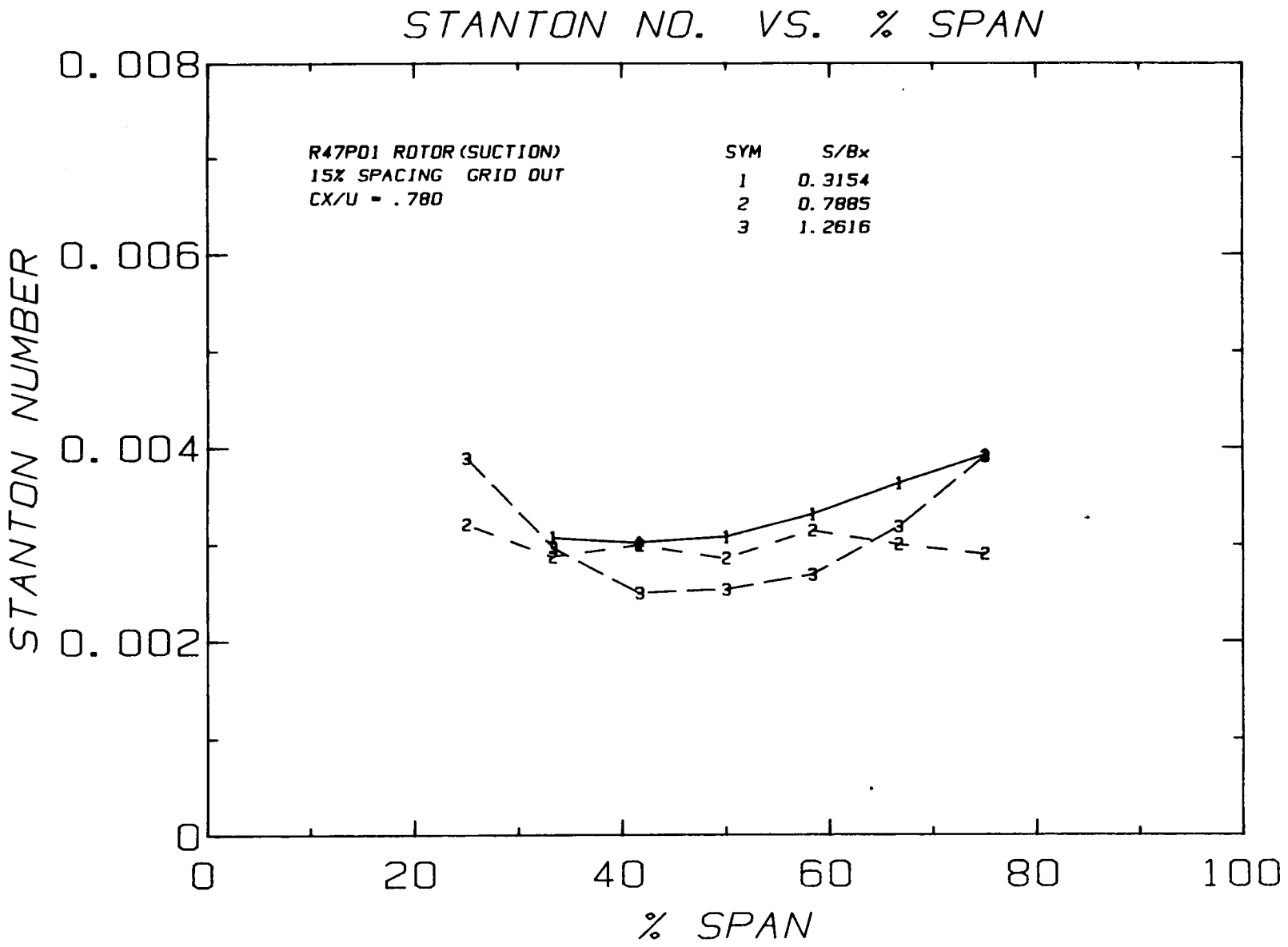
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003823	1557.4	75.6	24.2
6	4.00	66.7	0.003233	1317.4	79.6	26.4
7	3.50	58.3	0.002717	1107.2	84.5	29.1
8	3.00	50.0	0.002444	995.7	87.8	31.0
9	2.50	41.7	0.002341	953.9	89.3	31.8
10	2.00	33.3	0.003041	1238.9	81.2	27.3
11	1.50	25.0	0.003682	1500.3	76.4	24.7


STANTON NO. VS. S/Bx
R39P02 ROTOR (PRESSURE)
15% SPACING GRID OUT
CX/U = .780
R47P01 ROTOR (SUCTION)
15% SPACING GRID OUT
CX/U = .780
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R39P02 ROTOR (PRESSURE)
15% SPACING GRID OUT
CX/U = .780
R47P01 ROTOR (SUCTION)
15% SPACING GRID OUT
CX/U = .780
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R39P02 ROTOR (PRESSURE)
15% SPACING GRID OUT
CX/U = .780
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R47P01 ROTOR (SUCTION)
15% SPACING GRID OUT
CX/U = .780
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.780 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 39 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	55.8	175.0	0.0741	0.01472	0.2200	6.341
SI	13.2	53.3	1.1876	0.02546	2.4968	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003275	1317.9	77.6	25.3
42	0.30	0.047	0.004103	1651.3	73.3	22.9
59	-0.75	-0.118	0.001673	673.2	97.3	36.3
60	-1.00	-0.158	0.001625	653.9	98.5	37.0
61	-1.25	-0.197	0.001425	573.3	104.2	40.1
62	-1.50	-0.237	0.001363	548.7	106.4	41.3
63	-1.75	-0.276	0.001349	542.7	106.9	41.6
67	-2.25	-0.355	0.001375	553.5	106.0	41.1
71	-2.75	-0.434	0.001562	628.7	100.3	38.0
72	-3.25	-0.513	0.001584	637.6	99.7	37.6
81	-4.75	-0.749	0.001978	796.1	91.3	32.9
82	-5.25	-0.828	0.002154	867.0	88.5	31.4
83	-5.75	-0.907	0.002426	976.5	85.0	29.4
37	-6.25	0.986	0.002687	1081.4	82.3	27.9
91	-6.75	-1.065	0.002962	1192.0	80.0	26.6
92	-7.25	-1.143	0.003470	1396.7	76.6	24.8

ROTOR(PRESSURE) CX/U=.780 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 39 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	55.8	175.0	0.0741	0.01472	0.2200	6.341
SI	13.2	53.3	1.1876	0.02546	2.4968	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001339	539.0	107.2	41.8
67	3.00	50.0	0.001375	553.5	106.0	41.1
68	2.50	41.7	0.001545	621.7	100.8	38.2
69	2.00	33.3	0.001548	623.2	100.7	38.2
70	1.50	25.0	0.001612	648.7	99.0	37.2

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001769	712.1	95.3	35.2
75	4.00	66.7	0.001625	653.9	98.6	37.0
76	3.50	58.3	0.001802	725.2	94.6	34.8
78	2.50	41.7	0.001840	740.4	93.8	34.4
80	1.50	25.0	0.001857	747.2	93.5	34.2

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002715	1092.6	82.0	27.8
85	4.00	66.7	0.003079	1239.1	79.0	26.1
86	3.50	58.3	0.002703	1087.7	82.1	27.9
87	3.00	50.0	0.002687	1081.4	82.3	27.9
88	2.50	41.7	0.002495	1003.9	84.2	29.0
89	2.00	33.3	0.002720	1094.6	82.0	27.8
90	1.50	25.0	0.002952	1188.2	80.0	26.7

ROTOR(SUCTION) CX/U=.780 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 47 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	52.4	175.4	0.0745	0.01463	0.2660	6.341
SI	11.3	53.5	1.1930	0.02530	3.0188	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002406	981.2	87.1	30.6
2	9.50	1.498	0.002457	1002.0	86.5	30.3
3	9.00	1.419	0.002326	948.5	88.5	31.4
4	8.50	1.340	0.002338	953.6	88.4	31.4
8	8.00	1.262	0.002531	1032.1	85.9	29.9
13	7.00	1.104	0.002674	1090.3	84.2	29.0
14	6.50	1.025	0.002668	1088.0	84.3	29.0
15	6.00	0.946	0.002824	1151.5	82.6	28.1
20	5.00	0.789	0.002858	1165.3	82.2	27.9
25	4.00	0.631	0.002791	1138.0	82.9	28.3
27	3.00	0.473	0.002795	1139.7	82.8	28.2
28	2.50	0.394	0.003039	1239.4	80.4	26.9
32	2.00	0.315	0.003075	1254.1	80.1	26.7
38	0.50	0.079	0.003099	1264.0	79.7	26.5
40	0.40	0.063	0.003654	1489.9	75.7	24.3
41	0.35	0.055	0.003911	1595.0	74.2	23.4
43	0.25	0.039	0.004259	1736.6	72.5	22.5
44	0.20	0.032	0.004513	1840.3	71.3	21.9
47	0.05	0.008	0.004477	1825.8	71.5	21.9
48	0.00	0.000	0.004418	1801.5	71.7	22.1
49	-0.05	-0.008	0.003782	1542.4	74.9	23.8
50	-0.10	-0.016	0.003869	1577.9	74.4	23.6
52	-0.20	-0.032	0.003579	1459.5	76.2	24.5
53	-0.25	-0.039	0.003205	1307.1	78.9	26.0
54	-0.30	-0.047	0.002894	1180.1	81.6	27.6
56	-0.40	-0.063	0.002210	901.1	90.3	32.4
58	-0.50	-0.079	0.001945	793.1	95.2	35.1

ROTOR(SUCTION) CX/U=.780 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 47 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	52.4	175.4	0.0745	0.01463	0.2660	6.341
SI	11.3	53.5	1.1930	0.02530	3.0188	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

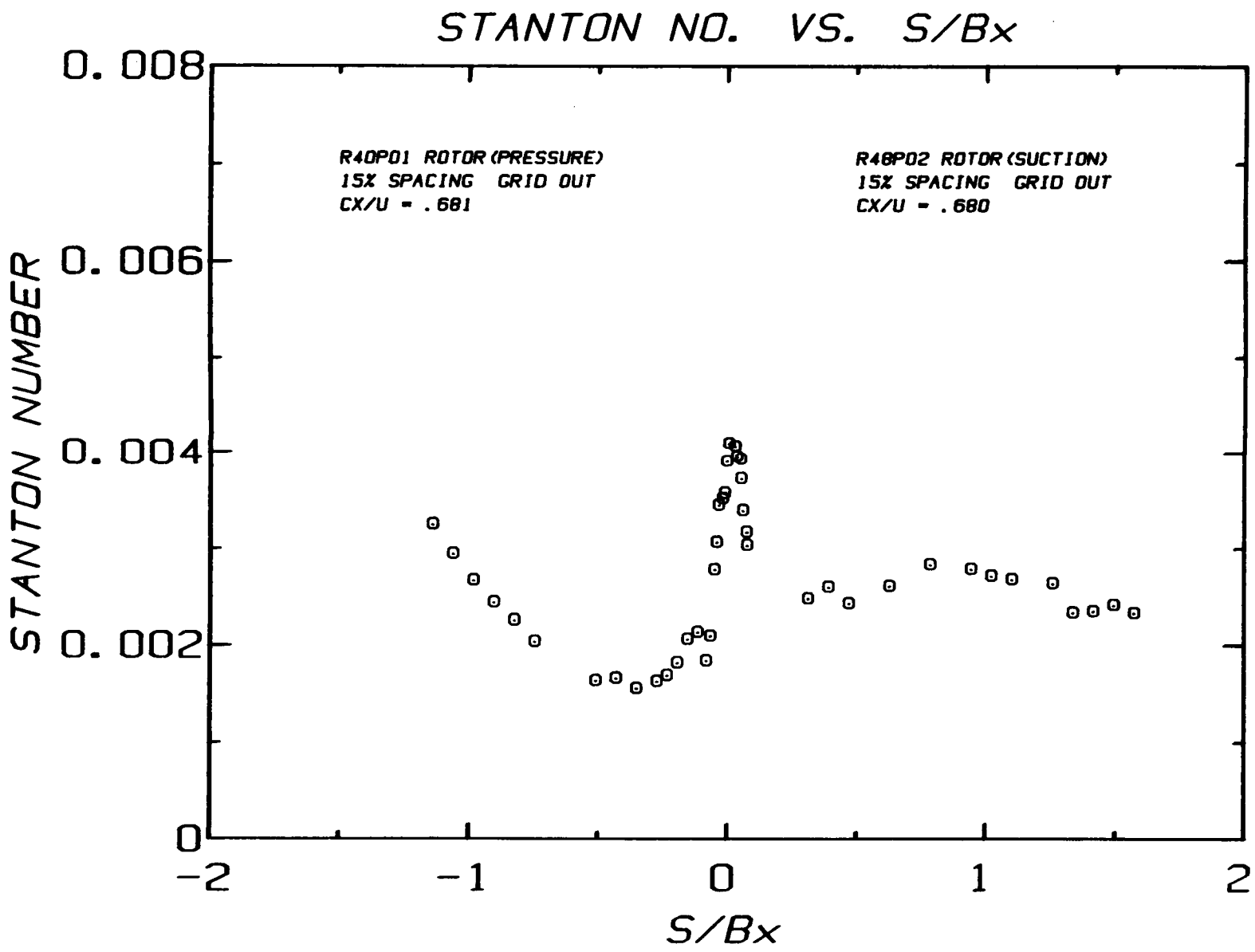
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
29	4.50	75.0	0.003918	1597.8	74.2	23.5
30	4.00	66.7	0.003625	1478.3	76.0	24.4
31	3.50	58.3	0.003309	1349.5	78.2	25.6
32	3.00	50.0	0.003075	1254.1	80.1	26.7
33	2.50	41.7	0.003017	1230.3	80.6	27.0
34	2.00	33.3	0.003072	1252.7	80.1	26.7

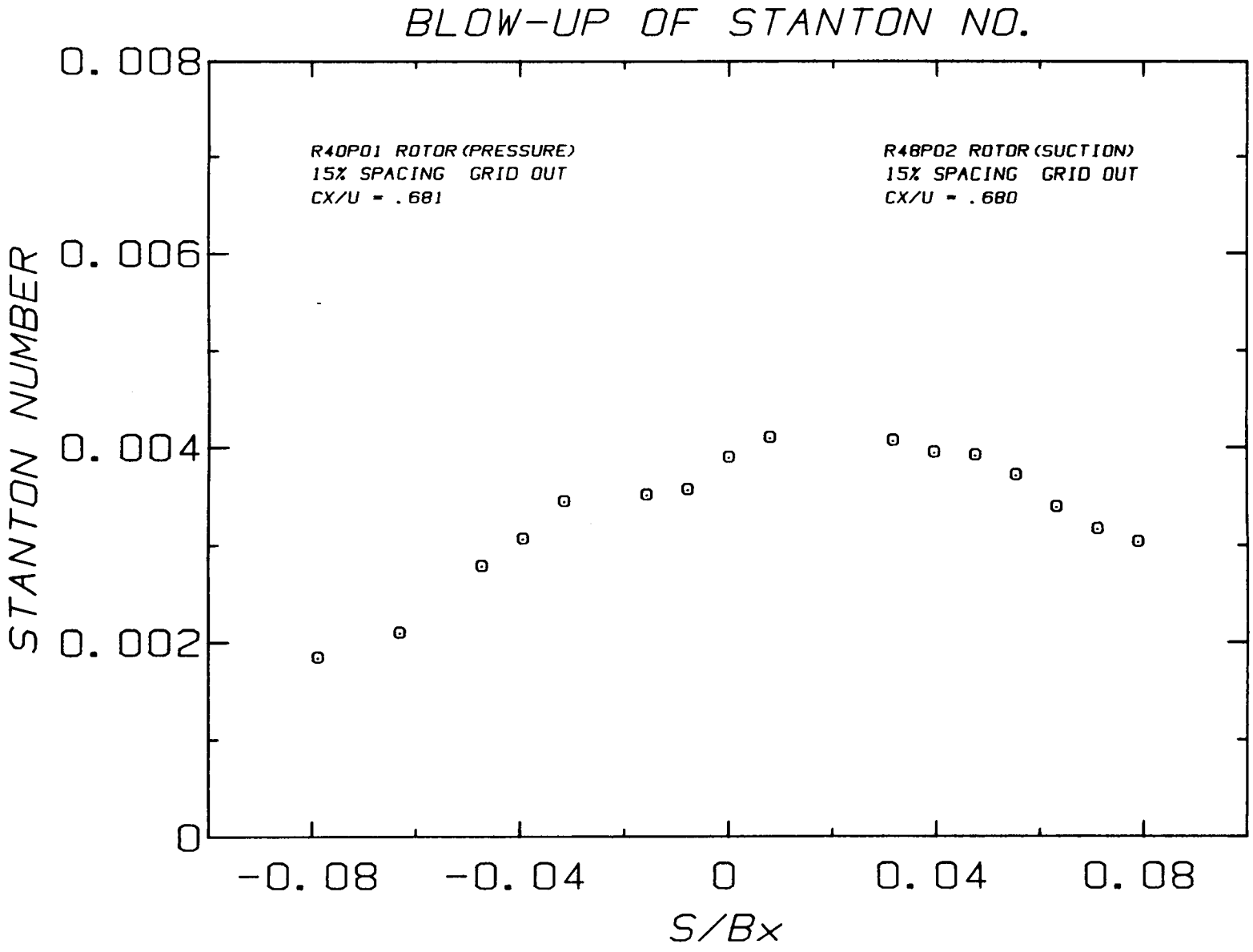
S/BX = 0.78852

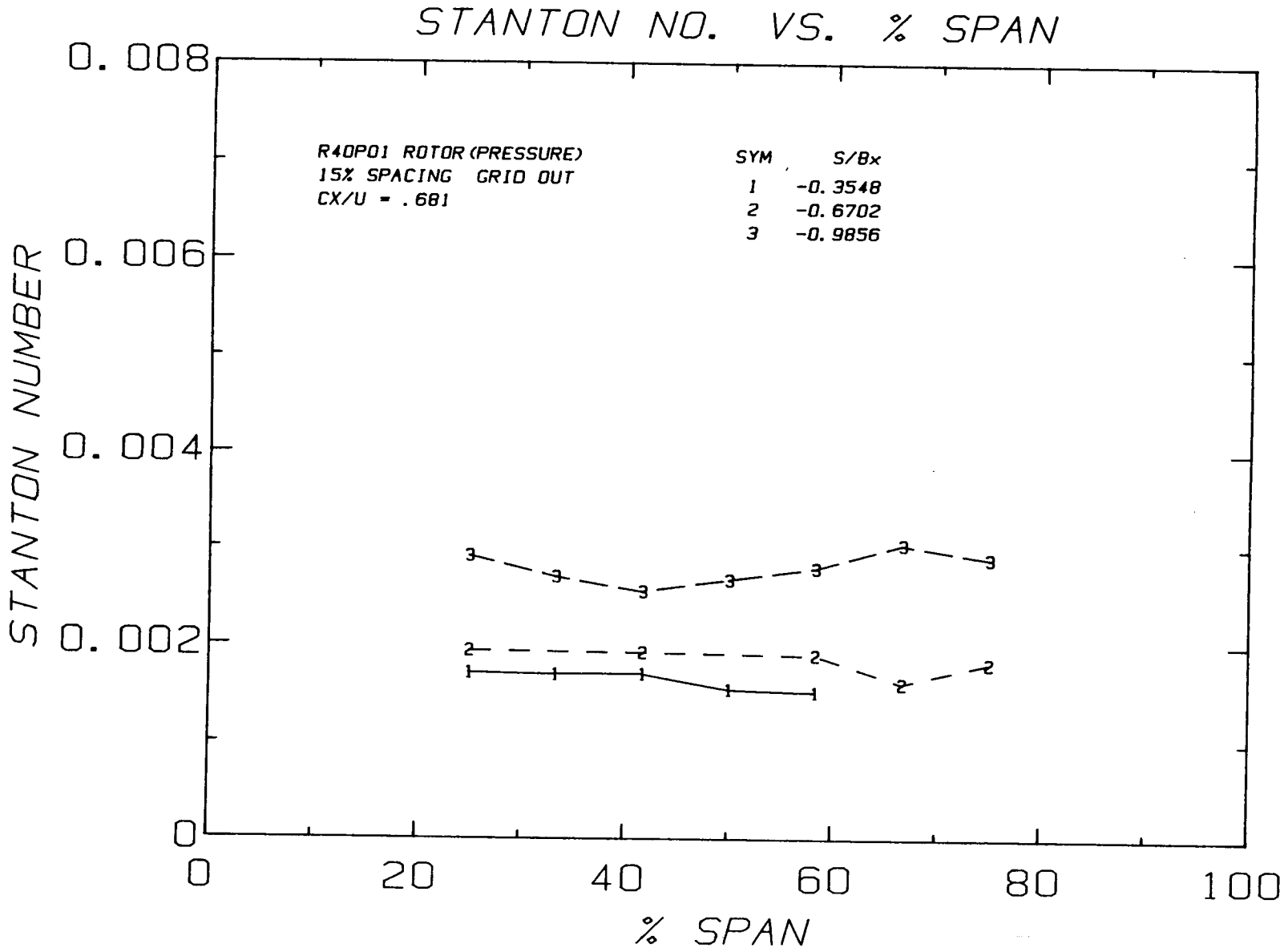
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.002902	1183.3	81.8	27.6
18	4.00	66.7	0.003002	1224.3	80.8	27.1
19	3.50	58.3	0.003144	1282.2	79.5	26.4
20	3.00	50.0	0.002858	1165.3	82.2	27.9
21	2.50	41.7	0.002992	1220.2	80.9	27.2
22	2.00	33.3	0.002871	1170.9	82.1	27.8
23	1.50	25.0	0.003207	1307.8	79.0	26.1

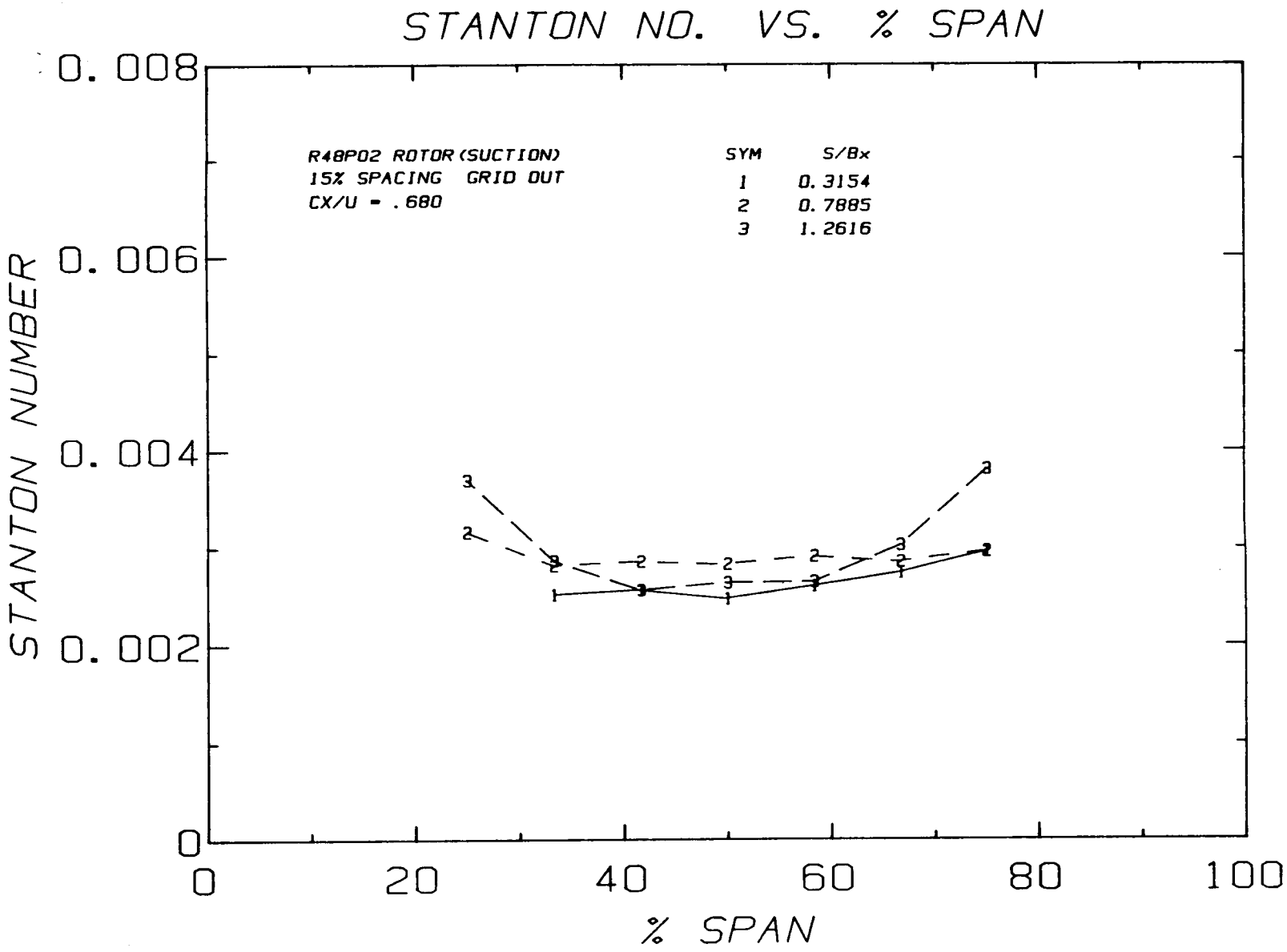
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003907	1593.1	74.4	23.5
6	4.00	66.7	0.003180	1296.6	79.2	26.2
7	3.50	58.3	0.002683	1094.2	84.0	28.9
8	3.00	50.0	0.002531	1032.1	85.9	29.9
9	2.50	41.7	0.002496	1018.0	86.3	30.2
10	2.00	33.3	0.002971	1211.4	81.1	27.3
11	1.50	25.0	0.003890	1586.3	74.5	23.6


STANTON NO. VS. S/Bx
R40P01 ROTOR(PRESSURE)
15% SPACING GRID OUT
CX/U = .681
R48P02 ROTOR(SUCTION)
15% SPACING GRID OUT
CX/U = .680
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R40P01 ROTOR (PRESSURE)
15% SPACING GRID OUT
CX/U = .681
R48P02 ROTOR (SUCTION)
15% SPACING GRID OUT
CX/U = .680
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R40P01 ROTOR (PRESSURE)
15% SPACING GRID OUT
CX/U = .681
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R48P02 ROTOR (SUCTION)
15% SPACING GRID OUT
CX/U = .680
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.681 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 40 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	57.1	175.4	0.0738	0.01474	0.2240	6.341
SI	13.9	53.5	1.1828	0.02549	2.5422	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003155	1265.9	80.1	26.7
42	0.30	0.047	0.003912	1569.6	75.7	24.3
59	-0.75	-0.118	0.002122	851.6	90.8	32.7
60	-1.00	-0.158	0.002050	822.6	92.0	33.3
61	-1.25	-0.197	0.001808	725.6	96.4	35.8
62	-1.50	-0.237	0.001679	673.6	99.4	37.4
63	-1.75	-0.276	0.001617	648.8	100.9	38.3
67	-2.25	-0.355	0.001544	619.5	102.9	39.4
71	-2.75	-0.434	0.001652	662.8	100.1	37.8
72	-3.25	-0.513	0.001627	652.7	100.7	38.1
81	-4.75	-0.749	0.002029	814.3	92.3	33.5
82	-5.25	-0.828	0.002250	902.8	89.0	31.7
83	-5.75	-0.907	0.002435	977.1	86.7	30.4
87	-6.25	-0.986	0.002662	1068.1	84.3	29.0
91	-6.75	-1.065	0.002937	1178.5	81.9	27.7
92	-7.25	-1.143	0.003241	1300.7	79.6	26.5

ROTOR(PRESSURE) CX/U=.681 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 40 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	57.1	175.4	0.0738	0.01474	0.2240	6.341
SI	13.9	53.5	1.1828	0.02549	2.5422	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001516	608.5	103.7	39.8
67	3.00	50.0	0.001544	619.5	102.9	39.4
68	2.50	41.7	0.001698	681.5	98.9	37.2
69	2.00	33.3	0.001692	679.0	99.1	37.3
70	1.50	25.0	0.001708	685.2	98.7	37.1

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001813	727.5	96.3	35.7
75	4.00	66.7	0.001606	644.3	101.1	38.4
76	3.50	58.3	0.001895	760.5	94.7	34.8
78	2.50	41.7	0.001921	770.9	94.2	34.6
80	1.50	25.0	0.001937	777.2	94.0	34.4

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002887	1158.6	82.2	27.9
85	4.00	66.7	0.003030	1215.7	81.1	27.3
86	3.50	58.3	0.002784	1117.3	83.1	28.4
87	3.00	50.0	0.002662	1068.1	84.3	29.0
88	2.50	41.7	0.002543	1020.3	85.5	29.7
89	2.00	33.3	0.002691	1079.8	84.0	28.9
90	1.50	25.0	0.002905	1165.		

ROTOR(SUCTION);15% SCX/U=.680 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 48 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	52.1	175.5	0.0743	0.01462	0.2830	6.341
SI	11.2	53.5	1.1903	0.02529	3.2118	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002329	948.6	90.1	32.3
2	9.50	1.498	0.002412	982.5	89.0	31.7
3	9.00	1.419	0.002346	955.7	90.1	32.3
4	8.50	1.340	0.002333	950.4	90.5	32.5
8	8.00	1.262	0.002638	1074.6	86.3	30.1
13	7.00	1.104	0.002679	1091.3	85.8	29.9
14	6.50	1.025	0.002714	1105.5	85.4	29.7
15	6.00	0.946	0.002784	1134.1	84.6	29.2
20	5.00	0.789	0.002830	1152.5	84.1	28.9
25	4.00	0.631	0.002606	1061.4	86.8	30.4
27	3.00	0.473	0.002427	988.4	89.2	31.8
28	2.50	0.394	0.002598	1058.3	86.8	30.5
32	2.00	0.315	0.002475	1008.2	88.5	31.4
38	0.50	0.079	0.003029	1233.6	81.8	27.7
40	0.40	0.063	0.003388	1380.0	78.8	26.0
41	0.35	0.055	0.003717	1513.8	76.5	24.7
43	0.25	0.039	0.003948	1608.0	75.1	23.9
44	0.20	0.032	0.004068	1657.1	74.4	23.6
47	0.05	0.008	0.004099	1669.5	74.2	23.5
48	0.00	0.000	0.003894	1586.3	75.4	24.1
49	-0.05	-0.008	0.003565	1452.1	77.5	25.3
50	-0.10	-0.016	0.003510	1429.7	77.9	25.5
52	-0.20	-0.032	0.003441	1401.7	78.4	25.8
53	-0.25	-0.039	0.003058	1245.7	81.6	27.5
54	-0.30	-0.047	0.002774	1129.9	84.5	29.2
56	-0.40	-0.063	0.002091	851.7	94.6	34.8
58	-0.50	-0.079	0.001836	747.7	100.2	37.9

ROTOR(SUCTION);15% SCX/U=.680 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 48 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	52.1	175.5	0.0743	0.01462	0.2830	6.341
SI	11.2	53.5	1.1903	0.02529	3.2118	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

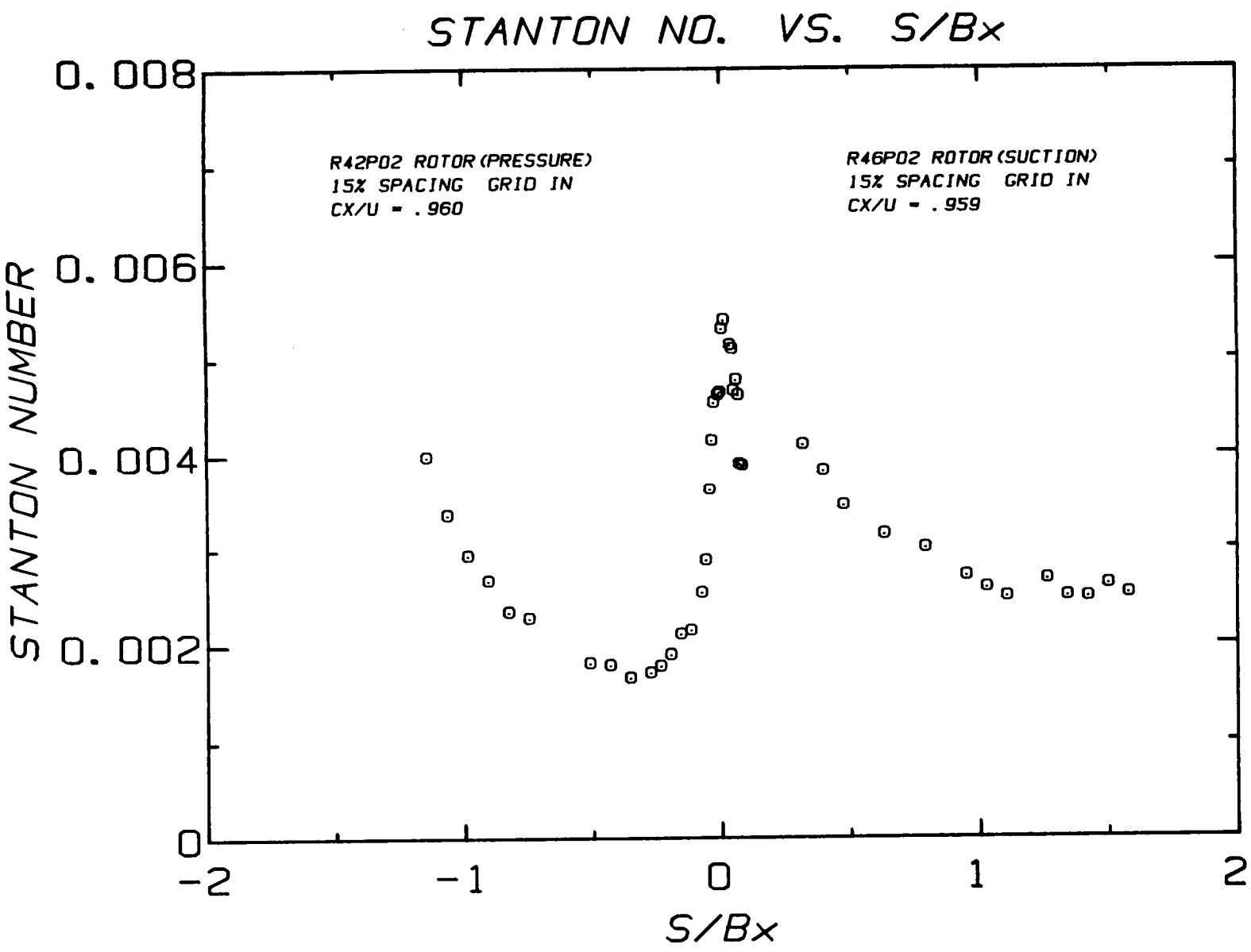
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
29	4.50	75.0	0.002957	1204.6	82.7	28.1
30	4.00	66.7	0.002739	1115.7	85.0	29.5
31	3.50	58.3	0.002605	1061.0	86.7	30.4
32	3.00	50.0	0.002475	1008.2	88.5	31.4
33	2.50	41.7	0.002566	1045.3	87.2	30.7
34	2.00	33.3	0.002518	1025.5	87.9	31.0

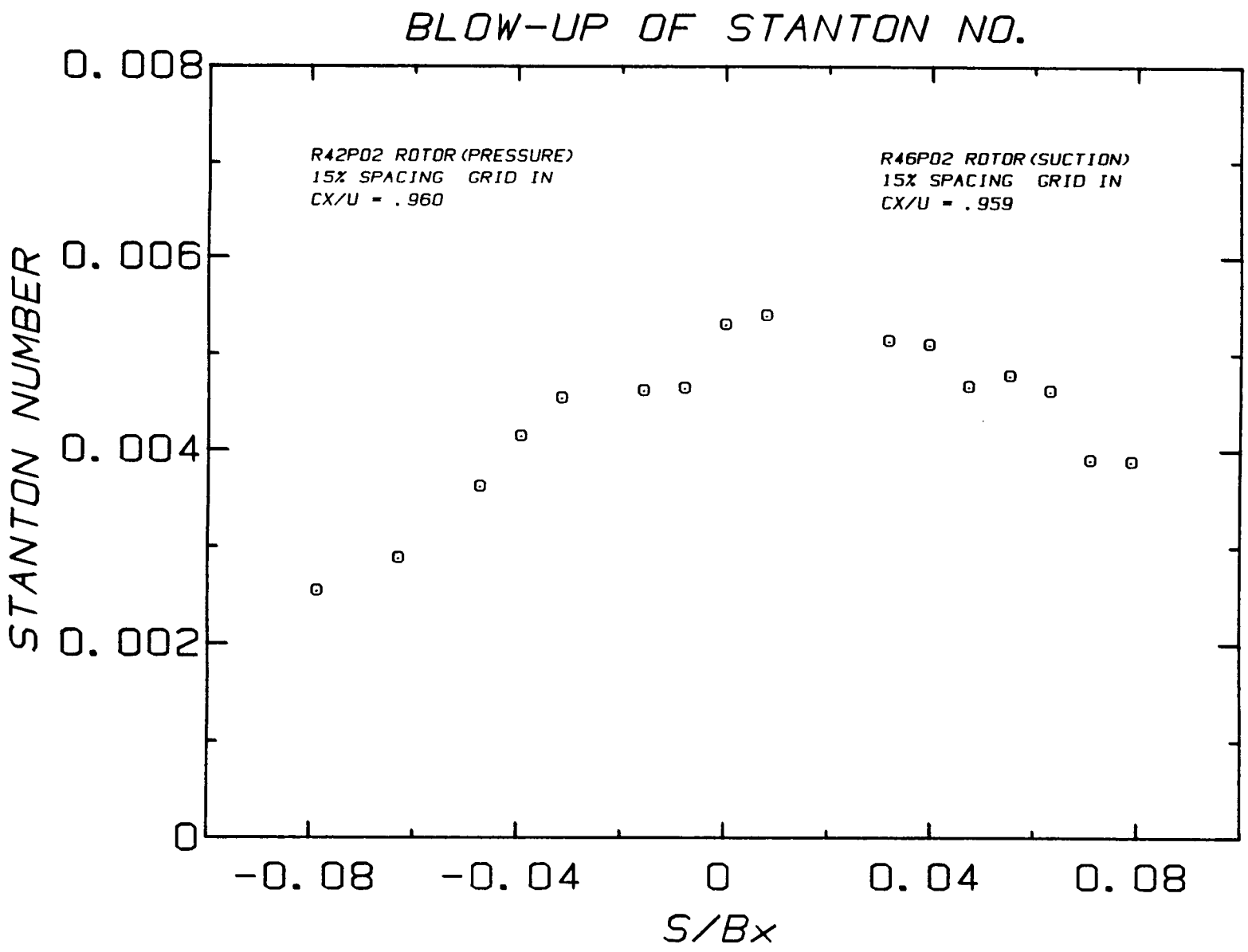
S/BX = 0.78852

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.002961	1206.3	82.7	28.2
18	4.00	66.7	0.002854	1162.4	83.8	28.8
19	3.50	58.3	0.002911	1185.7	83.2	28.5
20	3.00	50.0	0.002830	1152.5	84.1	28.9
21	2.50	41.7	0.002859	1164.4	83.8	28.8
22	2.00	33.3	0.002817	1147.3	84.2	29.0
23	1.50	25.0	0.003158	1286.5	80.8	27.1

S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003805	1549.8	76.0	24.5
6	4.00	66.7	0.003022	1231.1	82.1	27.8
7	3.50	58.3	0.002647	1078.1	86.2	30.1
8	3.00	50.0	0.002638	1074.6	86.3	30.1
9	2.50	41.7	0.002563	1043.9	87.2	30.7
10	2.00	33.3	0.002866	1167.6	83.6	28.7
11	1.50	25.0	0.003695	1504.9	76.7	24.9


STANTON NO. VS. S/Bx
R42P02 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .960
R46P02 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .959
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R42P02 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .960
R46P02 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .959
STANTON NUMBER
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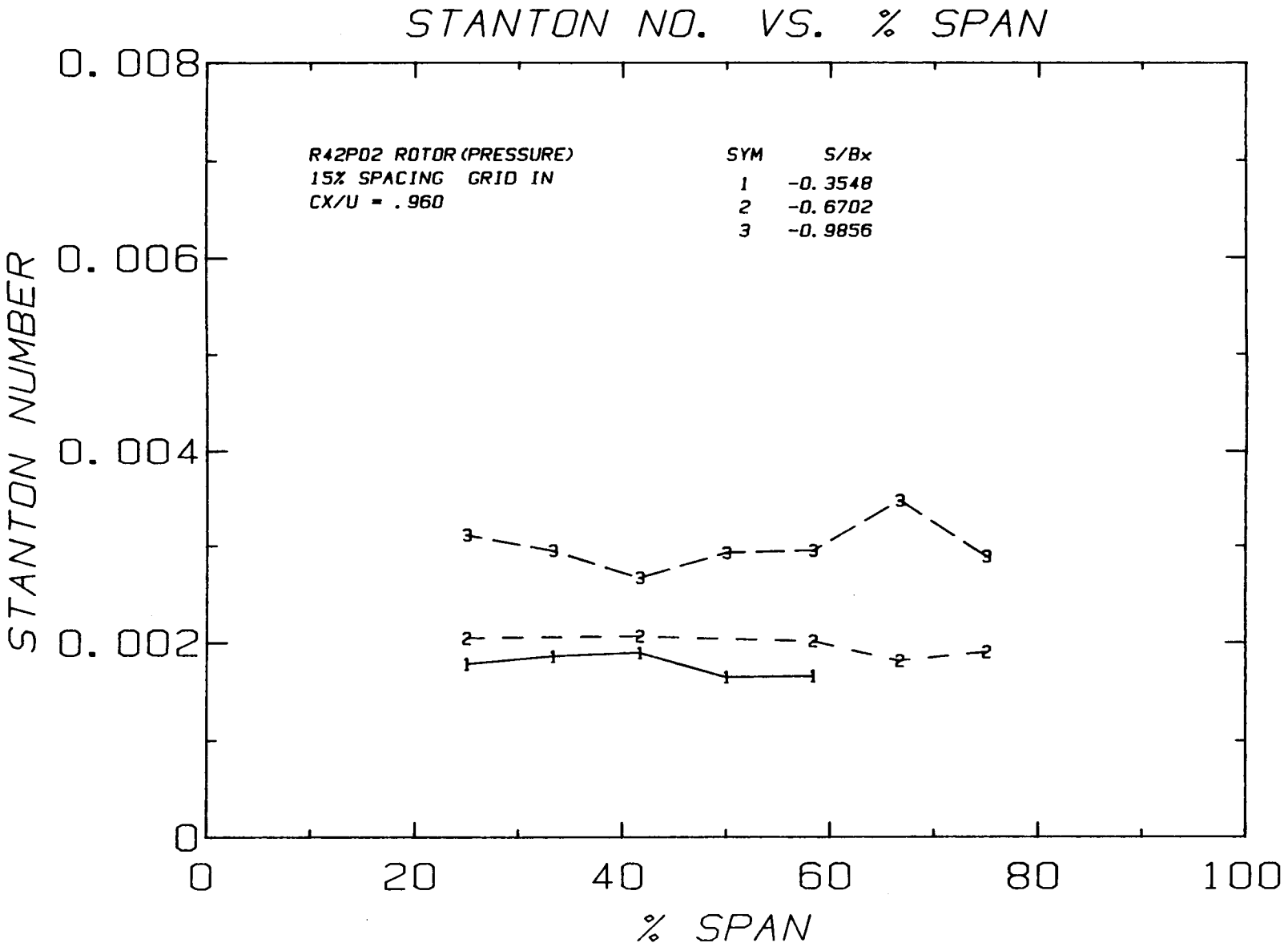
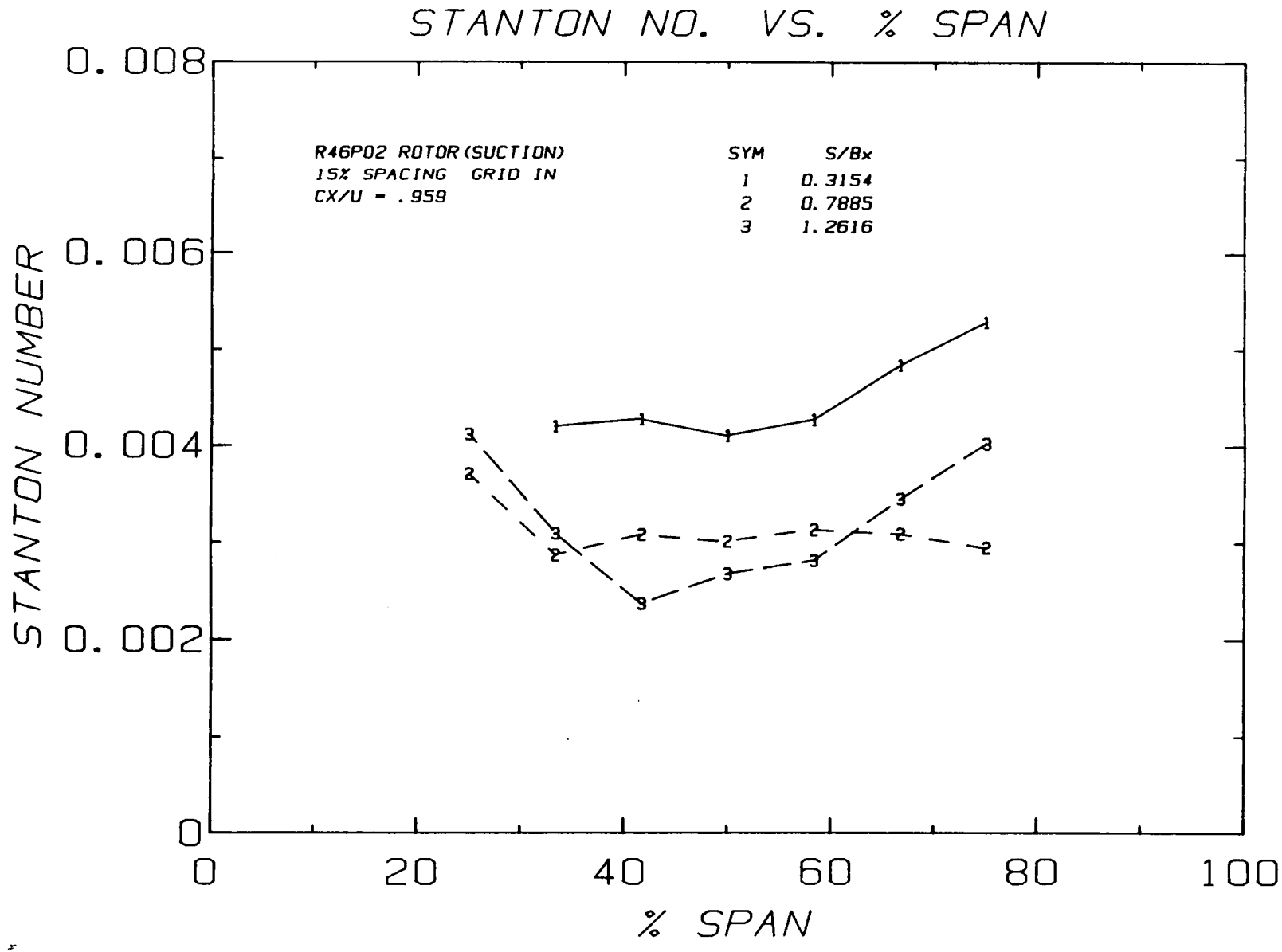
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R42P02 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .960
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R46P02 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .959
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.960 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 42 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	50.1	176.0	0.0744	0.01456	0.3120	6.341
SI	10.1	53.6	1.1924	0.02518	3.5409	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003888	1597.0	76.0	24.4
42	0.30	0.047	0.004653	1911.3	71.8	22.1
59	-0.75	-0.118	0.002137	877.8	96.4	35.8
60	-1.00	-0.158	0.002097	861.3	97.3	36.3
61	-1.25	-0.197	0.001883	773.5	102.5	39.2
62	-1.50	-0.237	0.001765	725.2	105.9	41.1
63	-1.75	-0.276	0.001698	697.3	108.1	42.3
67	-2.25	-0.355	0.001645	675.7	109.8	43.2
71	-2.75	-0.434	0.001778	730.3	105.6	40.9
72	-3.25	-0.513	0.001800	739.2	104.9	40.5
81	-4.75	-0.749	0.002269	932.1	93.9	34.4
82	-5.25	-0.828	0.002334	958.8	92.7	33.7
83	-5.75	-0.907	0.002661	1092.9	87.6	30.9
87	-6.25	-0.986	0.002924	1201.2	84.4	29.1
91	-6.75	-1.065	0.003346	1374.3	80.2	26.8
92	-7.25	-1.143	0.003975	1632.8	75.6	24.2

ROTOR(PRESSURE) CX/U=.960 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 42 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	50.1	176.0	0.0744	0.01456	0.3120	6.341
SI	10.1	53.6	1.1924	0.02518	3.5409	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001655	679.7	109.5	43.1
67	3.00	50.0	0.001645	675.7	109.8	43.2
68	2.50	41.7	0.001896	778.9	102.2	39.0
69	2.00	33.3	0.001858	763.1	103.3	39.6
70	1.50	25.0	0.001780	731.2	105.5	40.8

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001902	781.3	102.0	38.9
75	4.00	66.7	0.001811	743.7	104.5	40.3
76	3.50	58.3	0.002016	828.2	99.2	37.3
78	2.50	41.7	0.002066	848.6	98.0	36.7
80	1.50	25.0	0.002045	840.0	98.5	36.9

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002887	1185.9	84.8	29.3
85	4.00	66.7	0.003462	1422.2	79.2	26.2
86	3.50	58.3	0.002947	1210.7	84.1	29.0
87	3.00	50.0	0.002924	1201.2	84.4	29.1
88	2.50	41.7	0.002668	1096.0	87.5	30.9
89	2.00	33.3	0.002949	1211.2	84.1	28.9
90	1.50	25.0	0.003113	1278.9	82.4	28.0

ROTOR(SUCTION) CX/U=.959 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 46 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	55.7	175.4	0.0739	0.01471	0.2720	6.341
SI	13.1	53.5	1.1831	0.02544	3.0869	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002518	1012.7	89.5	32.0
2	9.50	1.498	0.002621	1054.1	88.4	31.3
3	9.00	1.419	0.002482	998.1	90.3	32.4
4	8.50	1.340	0.002495	1003.4	90.2	32.4
8	8.00	1.262	0.002676	1076.2	88.1	31.1
13	7.00	1.104	0.002488	1000.4	90.5	32.5
14	6.50	1.025	0.002588	1040.6	89.2	31.8
15	6.00	0.946	0.002714	1091.6	87.7	30.9
20	5.00	0.789	0.003009	1210.0	84.6	29.2
25	4.00	0.631	0.003148	1266.1	83.4	28.5
27	3.00	0.473	0.003449	1386.8	81.0	27.2
28	2.50	0.394	0.003831	1540.8	78.5	25.8
32	2.00	0.315	0.004101	1649.4	77.0	25.0
38	0.50	0.079	0.003885	1562.2	78.1	25.6
40	0.40	0.063	0.004621	1858.5	74.6	23.7
41	0.35	0.055	0.004782	1922.9	74.0	23.3
43	0.25	0.039	0.005101	2051.4	72.8	22.7
44	0.20	0.032	0.005142	2067.7	72.7	22.6
47	0.05	0.008	0.005406	2173.9	71.9	22.2
48	0.00	0.000	0.005309	2135.0	72.2	22.3
49	-0.05	-0.008	0.004646	1868.4	74.5	23.6
50	-0.10	-0.016	0.004621	1858.2	74.6	23.7
52	-0.20	-0.032	0.004540	1825.9	74.9	23.8
53	-0.25	-0.039	0.004144	1666.4	76.7	24.8
54	-0.30	-0.047	0.003620	1455.8	79.7	26.5
56	-0.40	-0.063	0.002879	1158.0	85.7	29.8
58	-0.50	-0.079	0.002540	1021.4	89.5	32.0

ROTOR(SUCTION) CX/U=.959 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 46 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	55.7	175.4	0.0739	0.01471	0.2720	6.341
SI	13.1	53.5	1.1831	0.02544	3.0869	16.106

FOR UNITS SEE NOMENCLATURE

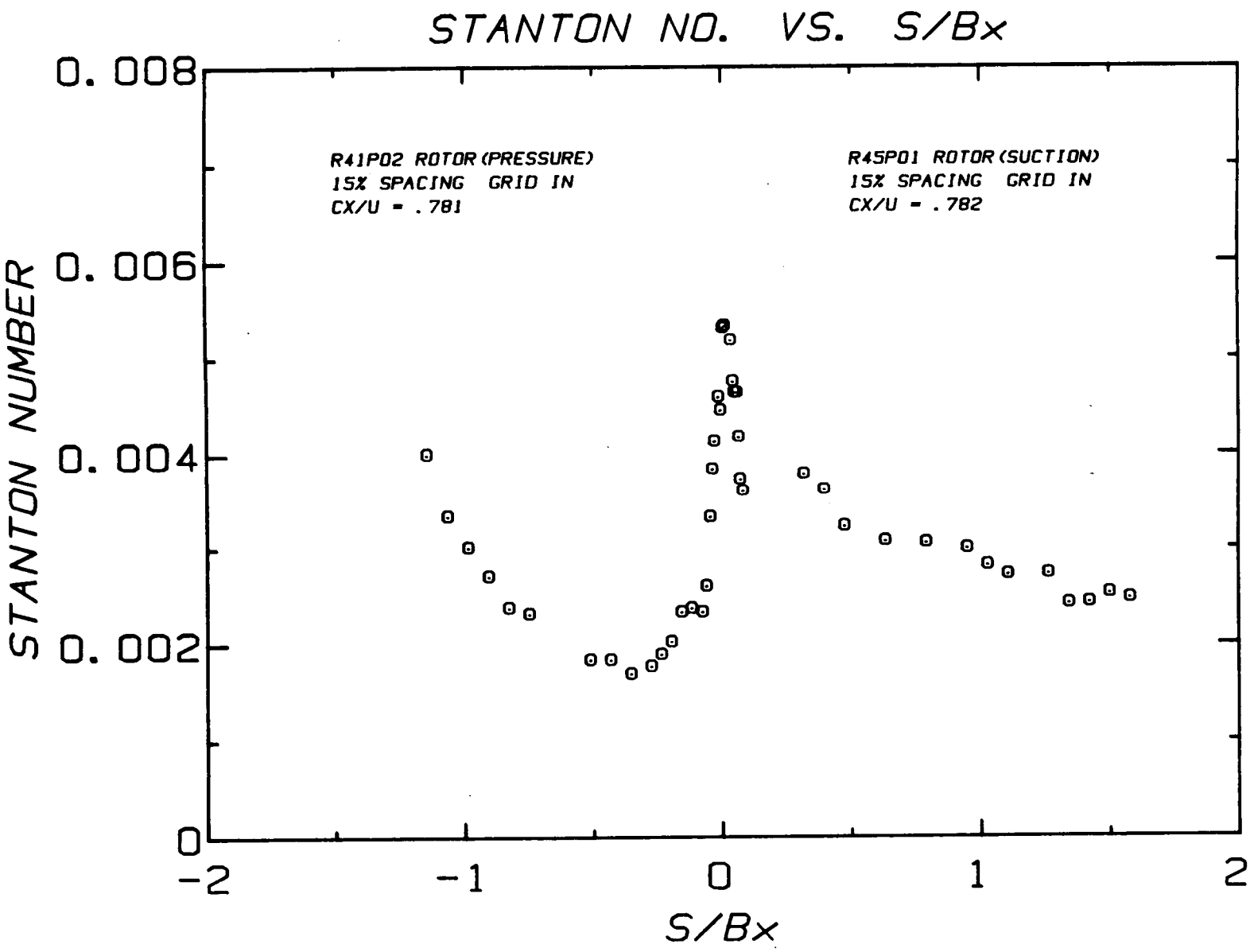
S/BX = 0.31541

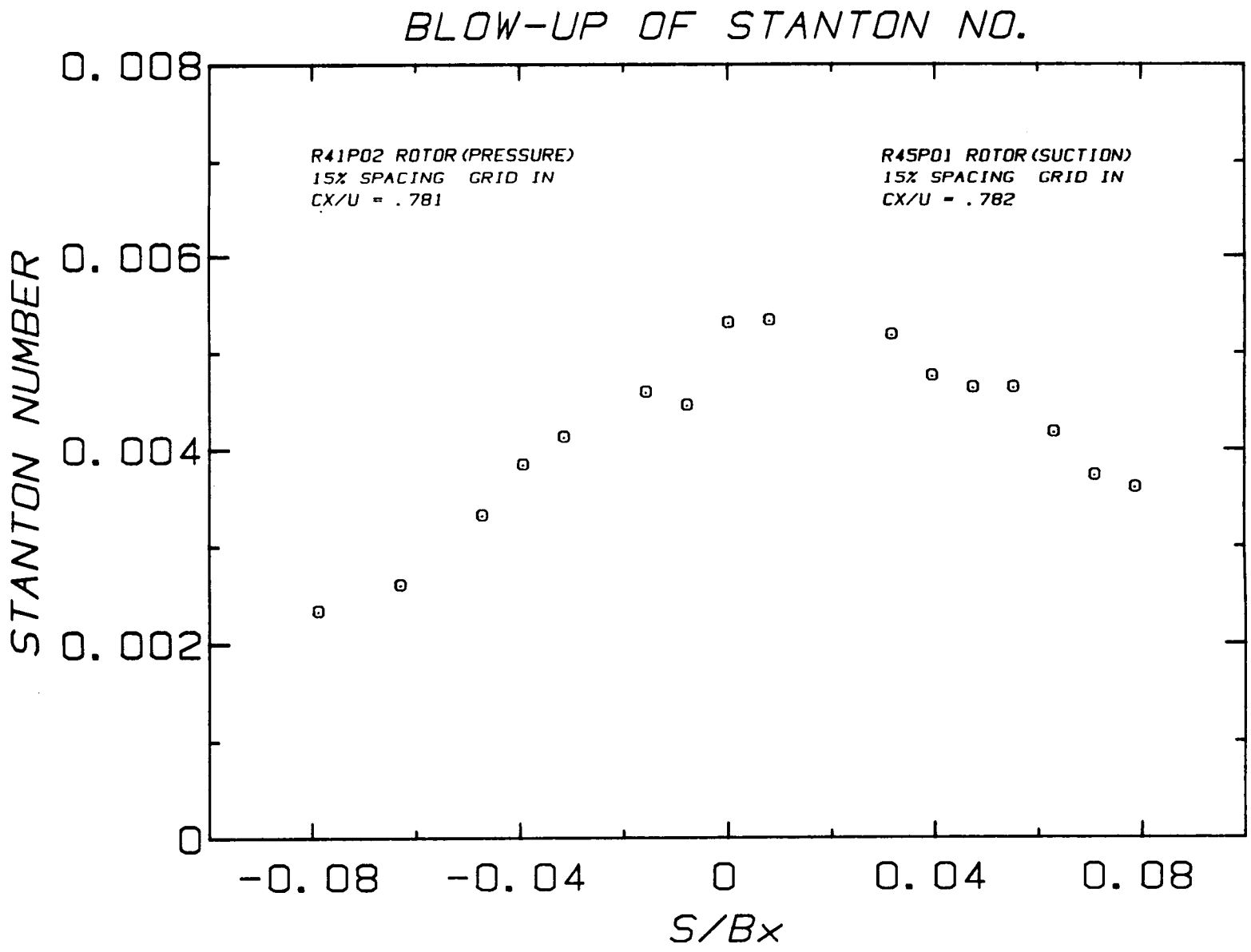
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
29	4.50	75.0	0.005282	2124.1	72.3	22.4
30	4.00	66.7	0.004834	1944.1	73.8	23.2
31	3.50	58.3	0.004269	1716.7	76.2	24.6
32	3.00	50.0	0.004101	1649.4	77.0	25.0
33	2.50	41.7	0.004275	1719.2	76.2	24.5
34	2.00	33.3	0.004198	1688.2	76.5	24.7

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.002946	1184.7	85.2	29.6
18	4.00	66.7	0.003089	1242.4	83.9	28.8
19	3.50	58.3	0.003133	1259.9	83.5	28.6
20	3.00	50.0	0.003009	1210.0	84.6	29.2
21	2.50	41.7	0.003079	1238.3	84.0	28.9
22	2.00	33.3	0.002866	1152.6	86.0	30.0
23	1.50	25.0	0.003707	1490.9	79.3	26.3

S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.004024	1618.4	77.5	25.3
6	4.00	66.7	0.003451	1387.8	81.0	27.2
7	3.50	58.3	0.002813	1131.4	86.5	30.3
8	3.00	50.0	0.002676	1076.2	88.1	31.1
9	2.50	41.7	0.002367	951.9	92.1	33.4
10	2.00	33.3	0.003091	1243.1	83.8	28.8
11	1.50	25.0	0.004117	1655.8	77.0	25.0


STANTON NO. VS. S/Bx
R41P02 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .781
R45P01 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .782
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R41P02 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .781
R45P01 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .782
STANTON NUMBER
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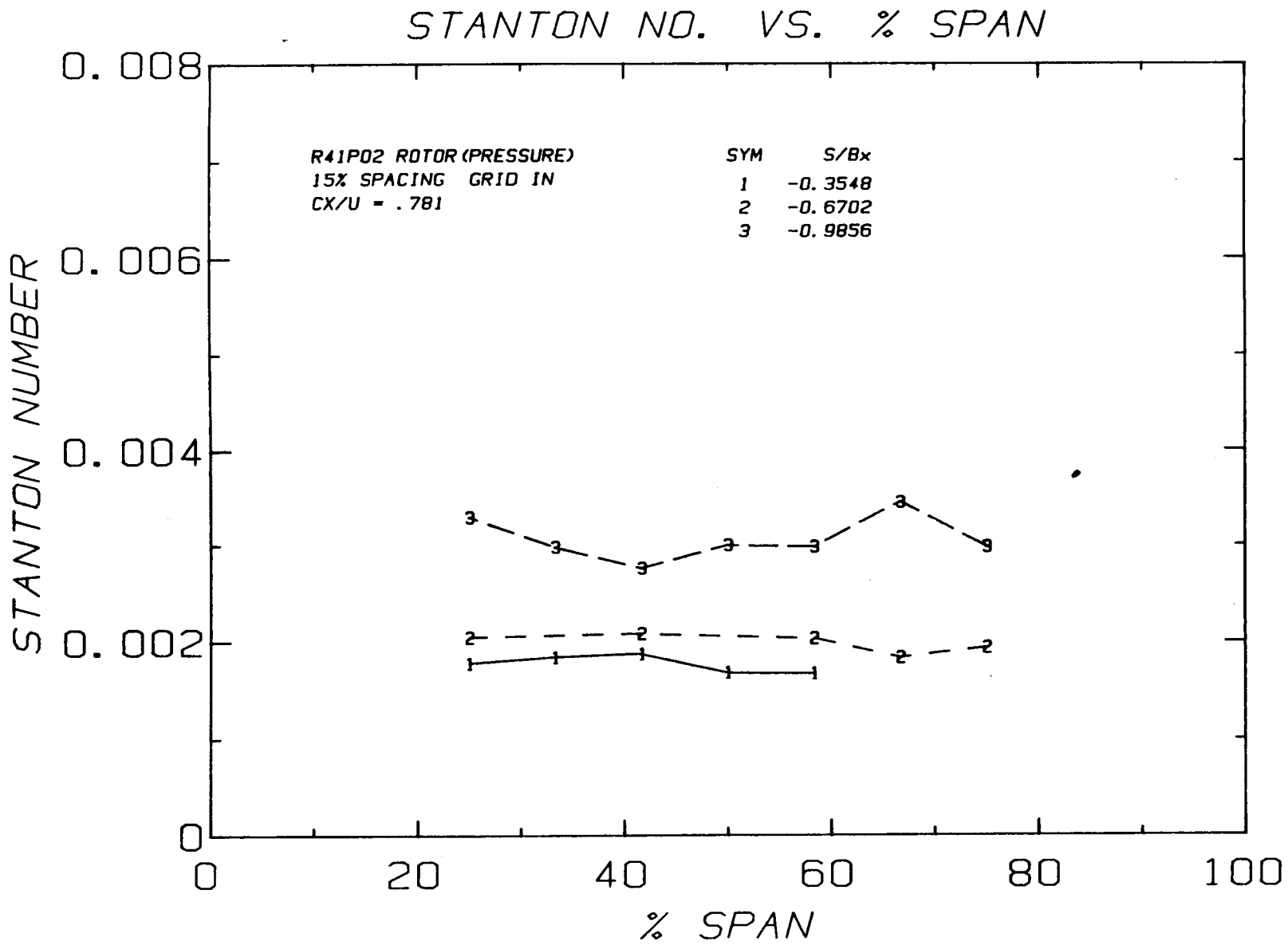
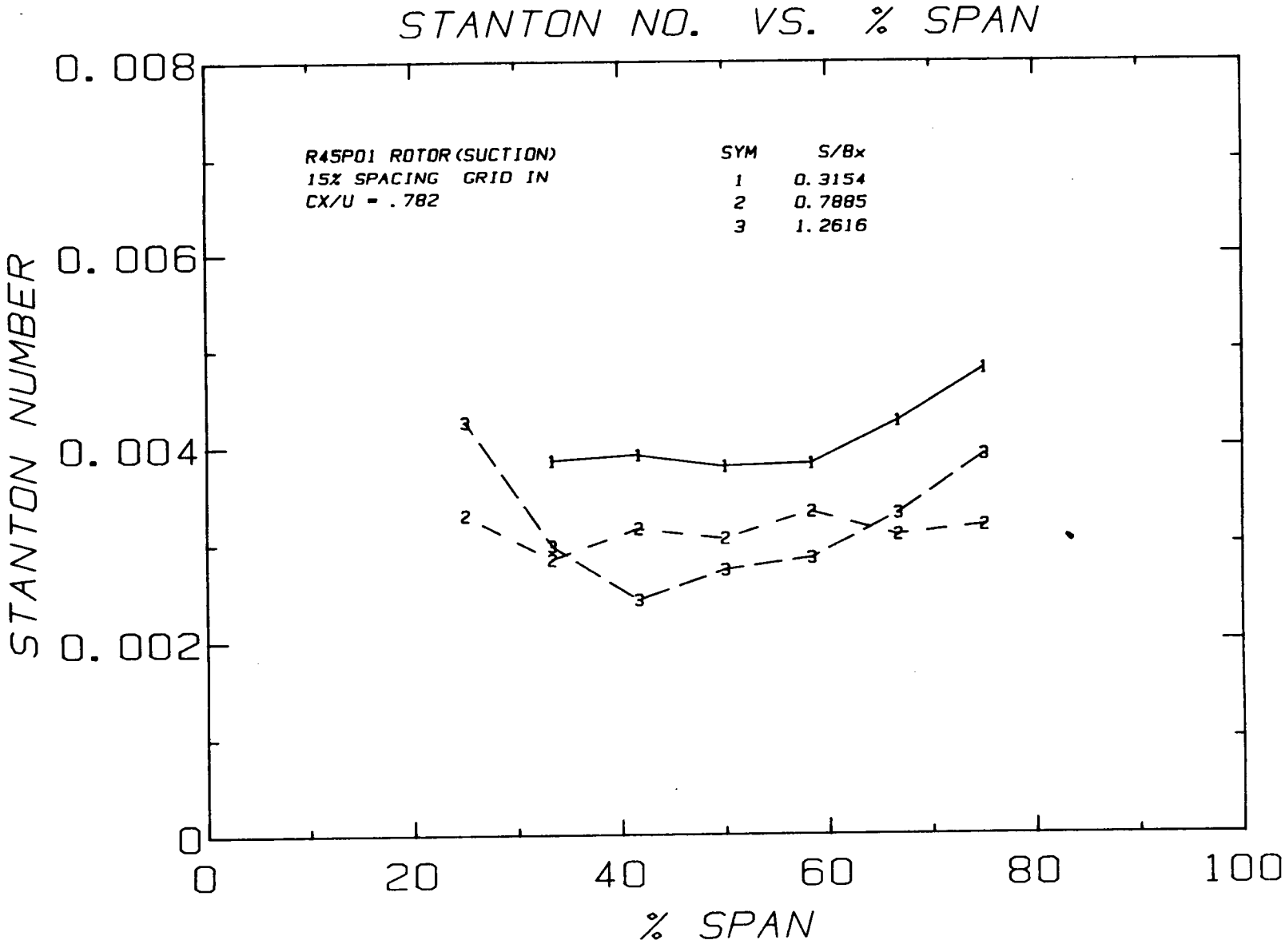
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R41P02 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .781
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R45P01 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .782
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.781 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 41 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	48.4	175.9	0.0745	0.01451	0.2840	6.341
SI	9.1	53.6	1.1940	0.02510	3.2231	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003718	1534.2	72.9	22.7
42	0.30	0.047	0.004627	1909.5	68.2	20.1
59	-0.75	-0.118	0.002362	974.5	86.6	30.3
60	-1.00	-0.158	0.002323	958.5	87.2	30.7
61	-1.25	-0.197	0.002013	830.7	93.0	33.9
62	-1.50	-0.237	0.001880	775.7	96.1	35.6
63	-1.75	-0.276	0.001756	724.7	99.3	37.4
67	-2.25	-0.355	0.001681	693.7	101.5	38.6
71	-2.75	-0.434	0.001825	753.1	97.5	36.4
72	-3.25	-0.513	0.001825	753.3	97.4	36.4
81	-4.75	-0.749	0.002307	952.1	87.5	30.8
82	-5.25	-0.828	0.002370	977.8	86.5	30.3
83	-5.75	-0.907	0.002696	1112.6	82.1	27.8
87	-6.25	-0.986	0.002997	1236.9	78.8	26.0
91	-6.75	-1.065	0.003320	1370.1	76.0	24.4
92	-7.25	-1.143	0.003990	1646.6	71.5	21.9

ROTOR(PRESSURE) CX/U=.781 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 41 POINT: 2

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	48.4	175.9	0.0745	0.01451	0.2840	6.341
SI	9.1	53.6	1.1940	0.02510	3.2231	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001672	689.8	101.8	38.8
67	3.00	50.0	0.001681	693.7	101.5	38.6
68	2.50	41.7	0.001876	774.1	96.2	35.7
69	2.00	33.3	0.001839	758.9	97.1	36.2
70	1.50	25.0	0.001774	731.9	98.8	37.1

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001940	800.6	94.6	34.8
75	4.00	66.7	0.001836	757.4	97.1	36.2
76	3.50	58.3	0.002037	840.4	92.5	33.6
78	2.50	41.7	0.002084	860.0	91.5	33.1
80	1.50	25.0	0.002043	843.0	92.4	33.5

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002979	1229.4	79.0	26.1
85	4.00	66.7	0.003439	1419.1	75.0	23.9
86	3.50	58.3	0.002980	1229.8	79.0	26.1
87	3.00	50.0	0.002997	1236.9	78.8	26.0
88	2.50	41.7	0.002760	1139.0	81.3	27.4
89	2.00	33.3	0.002979	1229.4	79.0	26.1
90	1.50	25.0	0.003285	1355.6	76.2	24.6

ROTOR(SUCTION) CX/U=.782 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 45 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.4	176.0	0.0738	0.01468	0.2720	6.341
SI	12.4	53.6	1.1818	0.02539	3.0869	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002472	998.2	88.9	31.6
2	9.50	1.498	0.002524	1019.3	88.3	31.3
3	9.00	1.419	0.002430	981.1	89.7	32.0
4	8.50	1.340	0.002419	976.8	90.0	32.2
8	8.00	1.262	0.002731	1102.8	86.1	30.1
13	7.00	1.104	0.002719	1098.1	86.3	30.2
14	6.50	1.025	0.002821	1139.3	85.2	29.6
15	6.00	0.946	0.002995	1209.5	83.5	28.6
20	5.00	0.789	0.003055	1233.8	82.9	28.3
25	4.00	0.631	0.003074	1241.3	82.7	28.2
27	3.00	0.473	0.003226	1302.8	81.4	27.5
28	2.50	0.394	0.003621	1462.4	78.5	25.8
32	2.00	0.315	0.003794	1532.0	77.4	25.2
38	0.50	0.079	0.003603	1455.1	78.5	25.8
40	0.40	0.063	0.004179	1687.7	75.3	24.0
41	0.35	0.055	0.004639	1873.5	73.2	22.9
43	0.25	0.039	0.004762	1923.1	72.7	22.6
44	0.20	0.032	0.005189	2095.3	71.3	21.8
47	0.05	0.008	0.005341	2156.7	70.8	21.6
48	0.00	0.000	0.005315	2146.4	70.9	21.6
49	-0.05	-0.008	0.004457	1799.8	74.0	23.3
50	-0.10	-0.016	0.004592	1854.4	73.4	23.0
52	-0.20	-0.032	0.004128	1666.9	75.5	24.2
53	-0.25	-0.039	0.003844	1552.2	77.0	25.0
54	-0.30	-0.047	0.003320	1340.8	80.5	26.9
56	-0.40	-0.063	0.002604	1051.5	87.4	30.8
58	-0.50	-0.079	0.002336	943.3	91.1	32.8

ROTOR(SUCTION) CX/U=.782 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 45 POINT: 1

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	54.4	176.0	0.0738	0.01468	0.2720	6.341
SI	12.4	53.6	1.1818	0.02539	3.0869	16.106

FOR UNITS SEE NOMENCLATURE

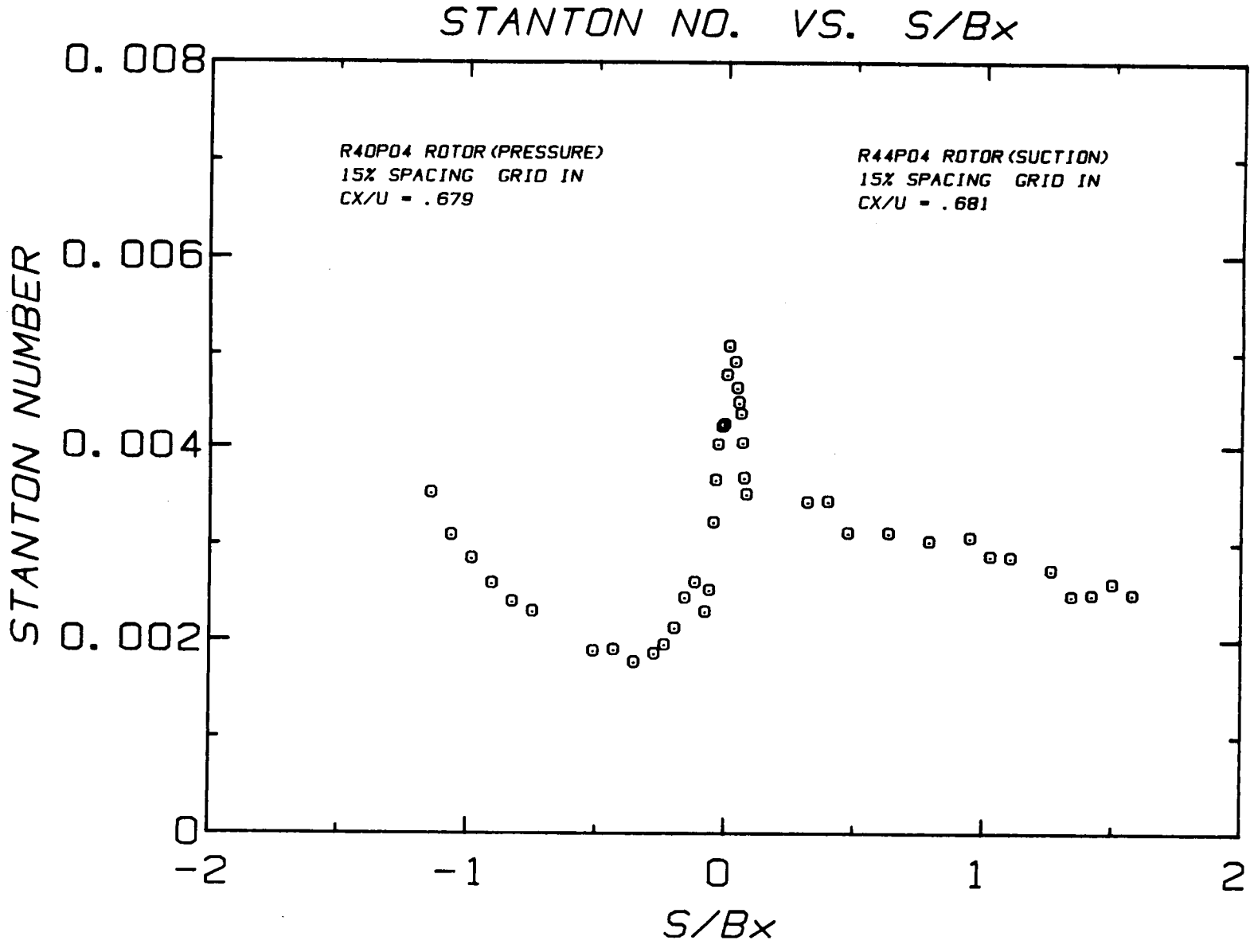
S/BX = 0.31541

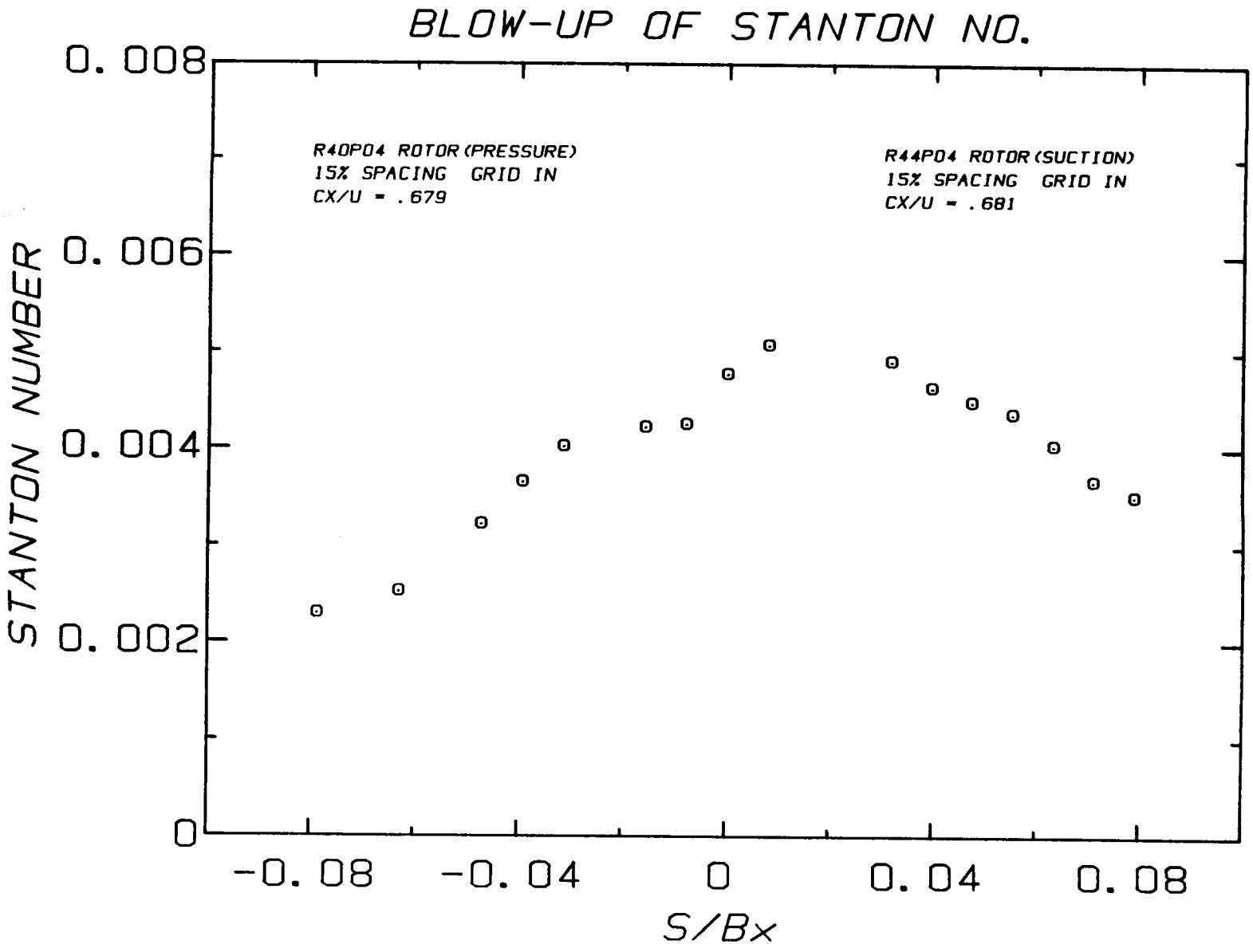
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
29	4.50	75.0	0.004800	1938.4	72.7	22.6
30	4.00	66.7	0.004257	1719.1	74.9	23.9
31	3.50	58.3	0.003824	1544.2	77.2	25.1
32	3.00	50.0	0.003794	1532.0	77.4	25.2
33	2.50	41.7	0.003915	1581.1	76.7	24.8
34	2.00	33.3	0.003856	1557.1	77.0	25.0

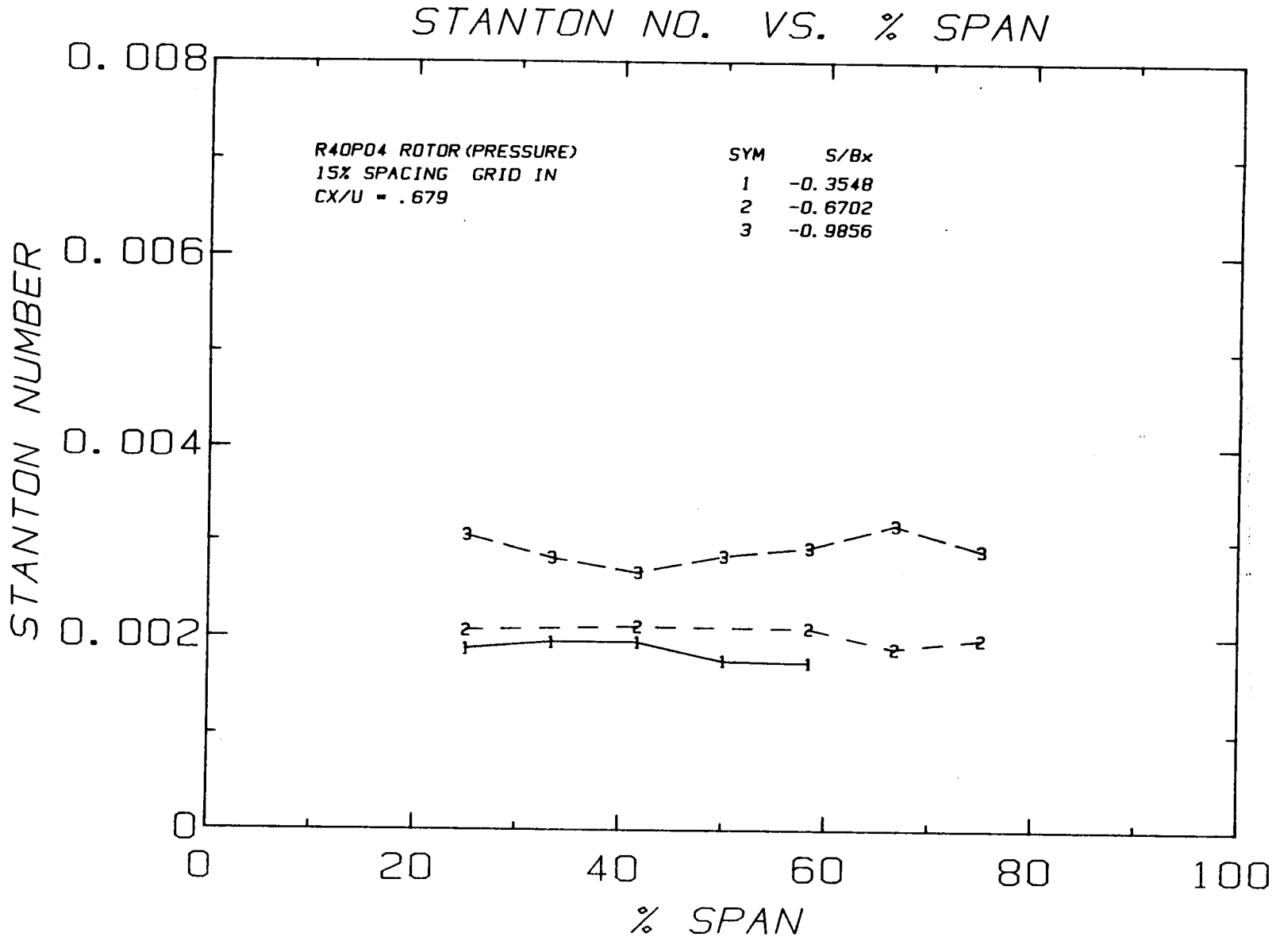
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.003181	1284.7	81.8	27.7
18	4.00	66.7	0.003088	1246.9	82.6	28.1
19	3.50	58.3	0.003328	1344.1	80.6	27.0
20	3.00	50.0	0.003055	1233.8	82.9	28.3
21	2.50	41.7	0.003158	1275.1	82.0	27.8
22	2.00	33.3	0.002840	1146.7	85.0	29.4
23	1.50	25.0	0.003296	1331.2	80.9	27.1

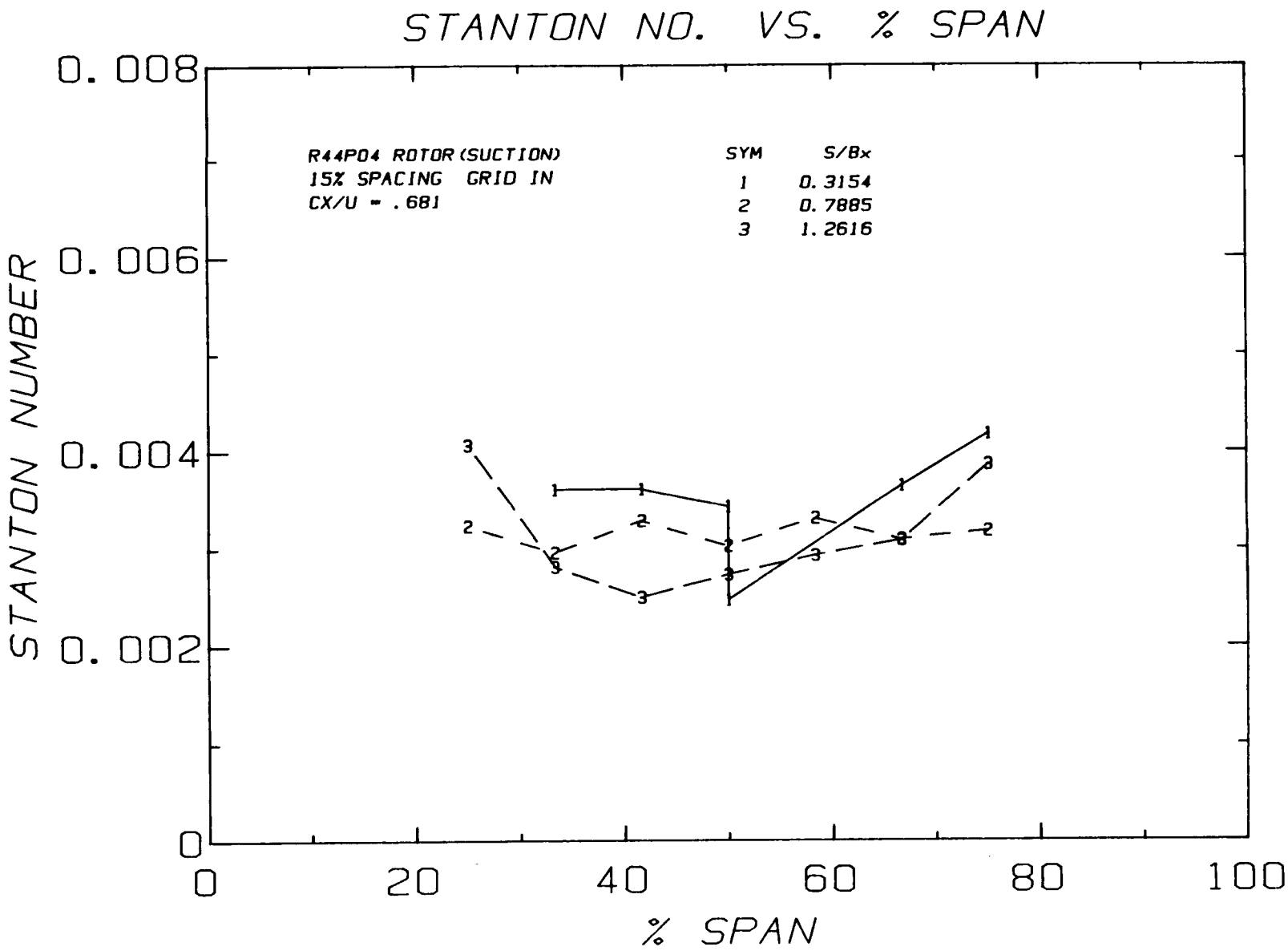
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003913	1580.0	76.8	24.9
6	4.00	66.7	0.003304	1334.4	80.8	27.1
7	3.50	58.3	0.002851	1151.4	84.8	29.4
8	3.00	50.0	0.002731	1102.8	86.1	30.1
9	2.50	41.7	0.002425	979.3	90.0	32.2
10	2.00	33.3	0.002981	1203.9	83.5	28.6
11	1.50	25.0	0.004259	1719.7	75.0	23.9


STANTON NO. VS. S/Bx
R40P04 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .679
R44P04 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .681
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R40P04 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .679
R44P04 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .681
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R40P04 ROTOR (PRESSURE)
15% SPACING GRID IN
CX/U = .679
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R44P04 ROTOR (SUCTION)
15% SPACING GRID IN
CX/U = .681
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.679 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 40 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	60.7	175.2	0.0730	0.01484	0.2700	6.341
SI	15.9	53.4	1.1698	0.02567	3.0642	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003662	1441.6	84.9	29.4
42	0.30	0.047	0.004479	1763.2	80.5	27.0
59	-0.75	-0.118	0.002587	1018.5	94.6	34.8
60	-1.00	-0.158	0.002424	954.2	96.9	36.0
61	-1.25	-0.197	0.002111	831.3	102.1	38.9
62	-1.50	-0.237	0.001938	763.1	105.6	40.9
63	-1.75	-0.276	0.001845	726.3	107.8	42.1
67	-2.25	-0.355	0.001757	691.6	110.1	43.4
71	-2.75	-0.434	0.001888	743.4	106.8	41.6
72	-3.25	-0.513	0.001873	737.4	107.1	41.7
81	-4.75	-0.749	0.002286	900.0	99.0	37.2
82	-5.25	-0.828	0.002384	938.7	97.4	36.4
83	-5.75	-0.907	0.002578	1015.0	94.8	34.9
87	-6.25	-0.986	0.002836	1116.5	91.8	33.2
91	-6.75	-1.065	0.003077	1211.5	89.4	31.9
92	-7.25	-1.143	0.003513	1383.0	86.0	30.0

ROTOR(PRESSURE) CX/U=.679 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 40 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	60.7	175.2	0.0730	0.01484	0.2700	6.341
SI	15.9	53.4	1.1698	0.02567	3.0642	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001736	683.3	110.7	43.7
67	3.00	50.0	0.001757	691.6	110.1	43.4
68	2.50	41.7	0.001949	767.2	105.5	40.8
69	2.00	33.3	0.001946	766.3	105.5	40.8
70	1.50	25.0	0.001876	738.4	107.1	41.7

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001978	778.7	104.7	40.4
75	4.00	66.7	0.001884	741.8	106.8	41.5
76	3.50	58.3	0.002092	823.6	102.4	39.1
78	2.50	41.7	0.002109	830.2	102.1	38.9
80	1.50	25.0	0.002066	813.3	102.9	39.4

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002902	1142.6	91.1	32.8
85	4.00	66.7	0.003161	1244.6	88.7	31.5
86	3.50	58.3	0.002922	1150.5	90.9	32.7
87	3.00	50.0	0.002836	1116.5	91.8	33.2
88	2.50	41.7	0.002668	1050.4	93.6	34.2
89	2.00	33.3	0.002819	1110.0	91.9	33.3
90	1.50	25.0	0.003056	1203.1	89.6	32.0

ROTOR(SUCTION) CX/U=.681 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 44 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.3	176.0	0.0738	0.01464	0.2760	6.341
SI	11.8	53.6	1.1824	0.02532	3.1323	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002471	1001.0	88.5	31.4
2	9.50	1.498	0.002588	1048.5	87.1	30.6
3	9.00	1.419	0.002468	999.9	88.8	31.6
4	8.50	1.340	0.002457	995.4	89.1	31.7
8	8.00	1.262	0.002729	1105.5	85.8	29.9
13	7.00	1.104	0.002860	1158.6	84.4	29.1
14	6.50	1.025	0.002872	1163.6	84.2	29.0
15	6.00	0.946	0.003066	1242.1	82.3	28.0
20	5.00	0.789	0.003027	1226.3	82.7	28.2
25	4.00	0.631	0.003112	1260.6	81.9	27.7
27	3.00	0.473	0.003113	1261.2	81.9	27.7
28	2.50	0.394	0.003440	1393.8	79.2	26.2
32	2.00	0.315	0.003433	1390.8	79.2	26.2
38	0.50	0.079	0.003512	1422.7	78.6	25.9
40	0.40	0.063	0.004039	1636.4	75.3	24.1
41	0.35	0.055	0.004369	1769.9	73.7	23.2
43	0.25	0.039	0.004637	1878.7	72.6	22.5
44	0.20	0.032	0.004911	1989.4	71.5	21.9
47	0.05	0.008	0.005077	2056.6	70.9	21.6
48	0.00	0.000	0.004772	1933.3	72.0	22.2
49	-0.05	-0.008	0.004252	1722.5	74.3	23.5
50	-0.10	-0.016	0.004221	1709.9	74.4	23.6
52	-0.20	-0.032	0.004019	1628.4	75.4	24.1
53	-0.25	-0.039	0.003653	1479.9	77.6	25.3
54	-0.30	-0.047	0.003217	1303.1	80.8	27.1
56	-0.40	-0.063	0.002516	1019.4	88.2	31.2
58	-0.50	-0.079	0.002290	927.6	91.5	33.1

ROTOR(SUCTION) CX/U=.681 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 44 POINT: 4

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	53.3	176.0	0.0738	0.01464	0.2760	6.341
SI	11.8	53.6	1.1824	0.02532	3.1323	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

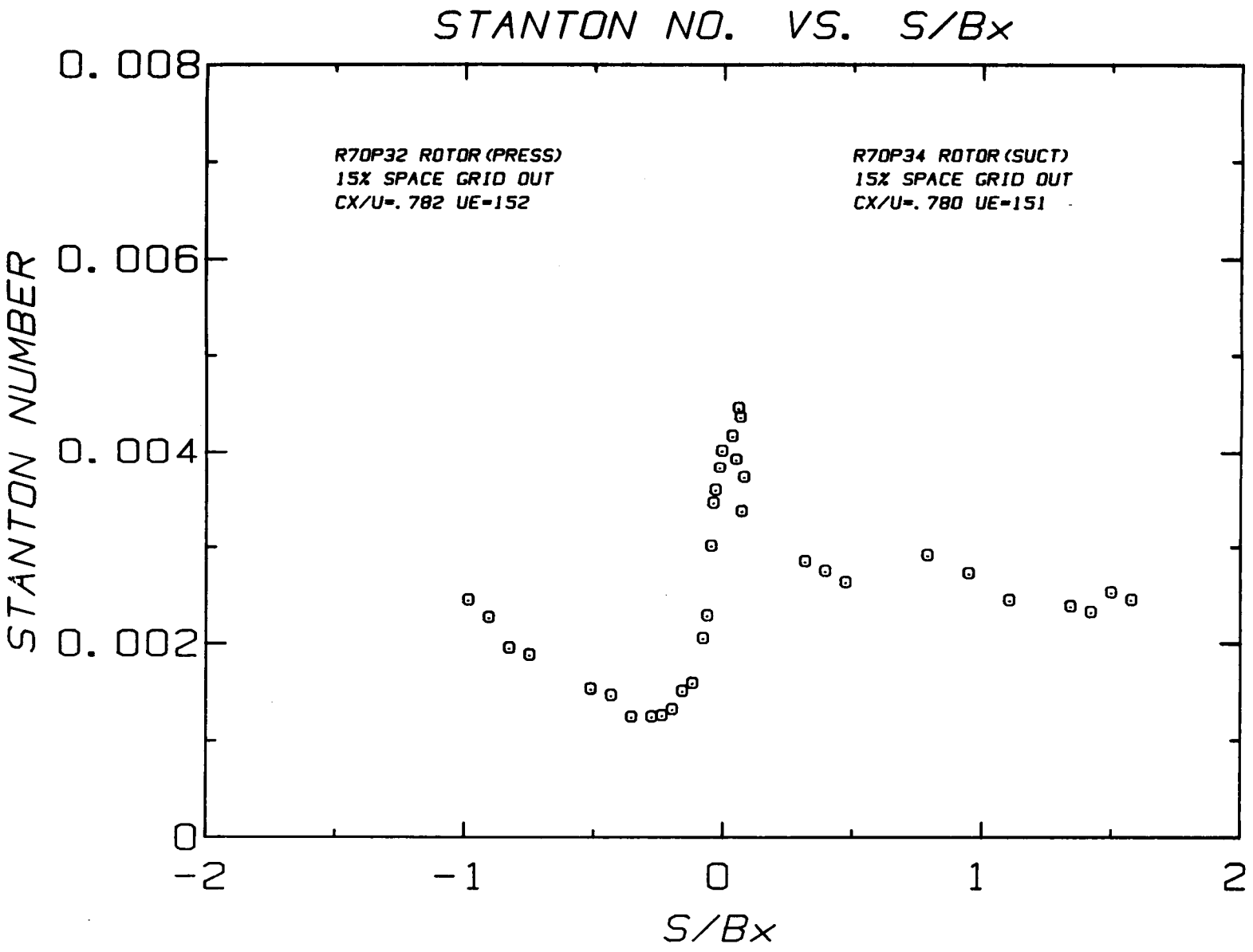
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
29	4.50	75.0	0.004178	1692.5	74.7	23.7
30	4.00	66.7	0.003644	1476.5	77.8	25.4
1	3.00	50.0	0.002471	1001.0	88.5	31.4
32	3.00	50.0	0.003433	1390.8	79.2	26.2
33	2.50	41.7	0.003614	1464.2	78.0	25.5
34	2.00	33.3	0.003608	1461.7	78.0	25.6

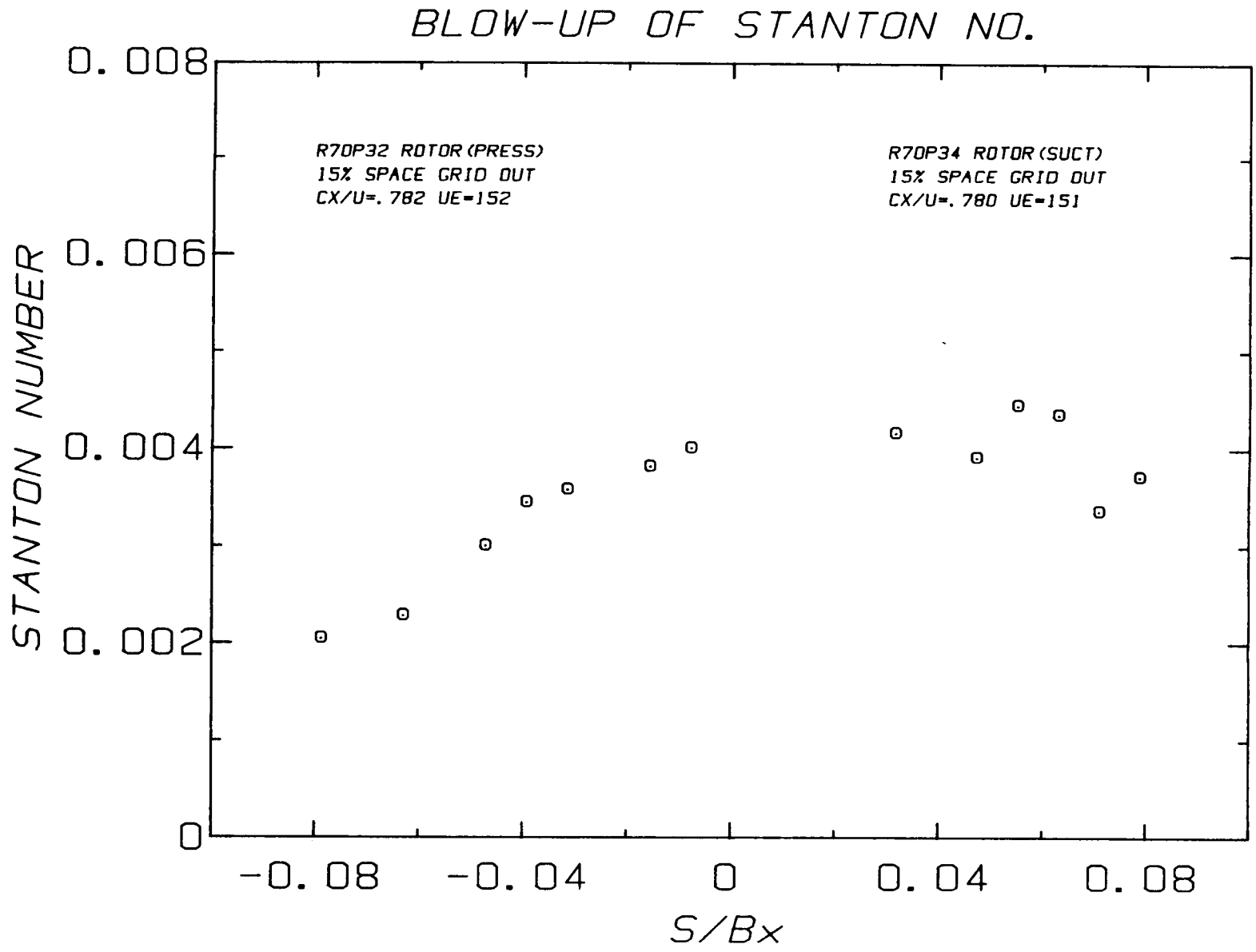
S/BX = 0.78852

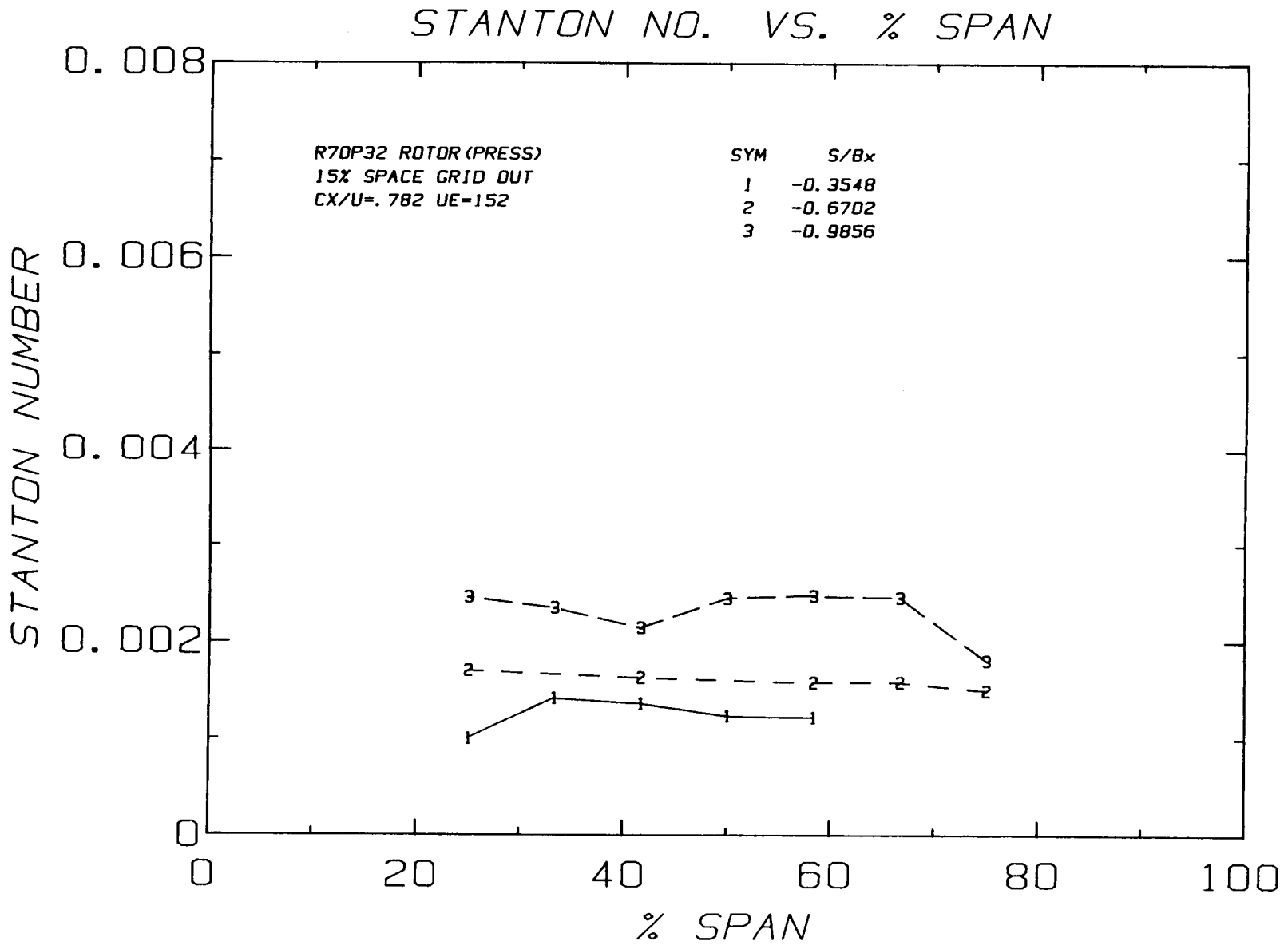
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.003179	1287.8	81.3	27.4
18	4.00	66.7	0.003091	1252.4	82.1	27.8
19	3.50	58.3	0.003312	1341.7	80.2	26.8
20	3.00	50.0	0.003027	1226.3	82.7	28.2
21	2.50	41.7	0.003288	1332.1	80.4	26.9
22	2.00	33.3	0.002960	1199.1	83.3	28.5
23	1.50	25.0	0.003235	1310.5	80.8	27.1

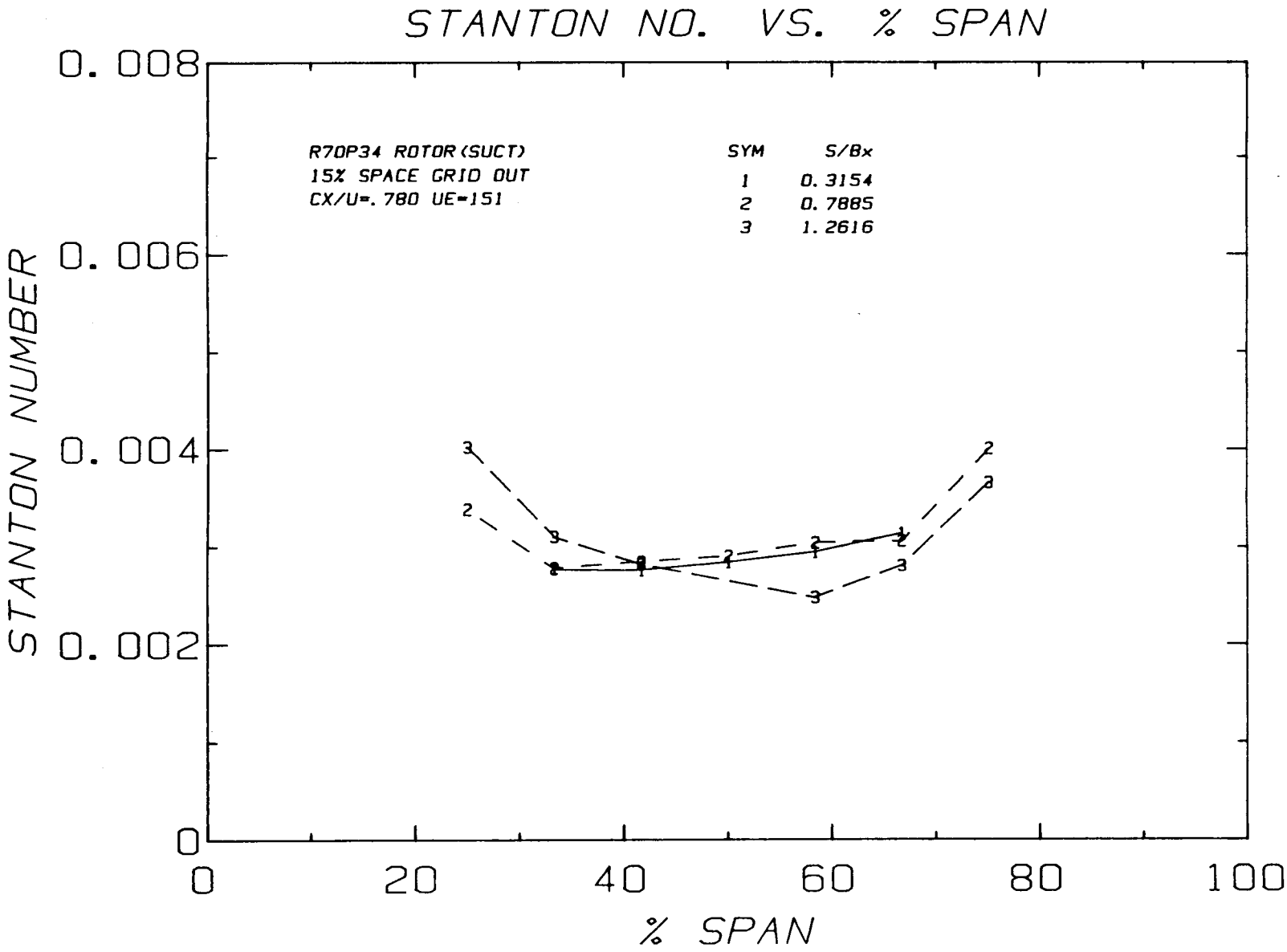
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003866	1566.3	76.4	24.7
6	4.00	66.7	0.003084	1249.3	82.1	27.9
7	3.50	58.3	0.002923	1186.1	83.6	28.7
8	3.00	50.0	0.002729	1105.5	85.8	29.9
9	2.50	41.7	0.002498	1012.1	88.6	31.5
10	2.00	33.3	0.002813	1139.6	84.8	29.3
11	1.50	25.0	0.004068	1648.1	75.3	24.1


STANTON NO. VS. S/Bx
R70P32 ROTOR (PRESS)
15% SPACE GRID OUT
CX/U=.782 UE=152
R70P34 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=.780 UE=151
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P32 ROTOR(PRESS)
15% SPACE GRID OUT
CX/U=.782 UE=152
R70P34 ROTOR(SUCT)
15% SPACE GRID OUT
CX/U=.780 UE=151
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P32 ROTOR (PRESS)
15% SPACE GRID OUT
CX/U=.782 UE=152
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P34 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=.780 UE=151
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.782 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 32

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	58.4	151.7	0.0755	0.01478	0.1790	6.341
SI	14.7	46.2	1.2102	0.02556	2.0315	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003359	1188.8	78.1	25.6
42	0.30	0.047	0.003915	1385.8	75.4	24.1
59	-0.75	-0.118	0.001580	559.1	98.7	37.1
60	-1.00	-0.158	0.001497	530.0	100.9	38.3
61	-1.25	-0.197	0.001312	464.5	106.5	41.4
62	-1.50	-0.237	0.001248	441.9	108.8	42.7
63	-1.75	-0.276	0.001234	436.8	109.4	43.0
67	-2.25	-0.355	0.001233	436.5	109.4	43.0
71	-2.75	-0.434	0.001458	516.0	102.1	39.0
72	-3.25	-0.513	0.001523	539.1	100.4	38.0
81	-4.75	-0.749	0.001877	664.3	92.8	33.8
82	-5.25	-0.828	0.001949	689.8	91.6	33.1
83	-5.75	-0.907	0.002267	802.3	87.2	30.7
87	-6.25	-0.986	0.002446	865.9	85.2	29.6

ROTOR(PRESSURE) CX/U=.782 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 32

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	58.4	151.7	0.0755	0.01478	0.1790	6.341
SI	14.7	46.2	1.2102	0.02556	2.0315	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001217	430.8	110.1	43.4
67	3.00	50.0	0.001233	436.5	109.4	43.0
68	2.50	41.7	0.001360	481.4	105.0	40.6
69	2.00	33.3	0.001415	500.8	103.4	39.7
70	1.50	25.0	0.001000	353.9	120.1	48.9

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001498	530.1	100.9	38.3
75	4.00	66.7	0.001584	560.6	98.8	37.1
76	3.50	58.3	0.001580	559.3	98.9	37.1
78	2.50	41.7	0.001627	575.9	97.8	36.5
80	1.50	25.0	0.001701	602.2	96.2	35.6

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.001808	639.8	94.0	34.4
85	4.00	66.7	0.002457	869.8	85.1	29.5
86	3.50	58.3	0.002476	876.3	84.9	29.4
87	3.00	50.0	0.002446	865.9	85.2	29.6
88	2.50	41.7	0.002141	758.0	88.8	31.6
89	2.00	33.3	0.002350	831.8	86.3	30.1
90	1.50	25.0	0.002460	870.7	85.1	29.5

ROTOR(SUCTION) CX/U=.780 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 34

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	41.9	151.4	0.0777	0.01435	0.2000	6.341
SI	5.5	46.2	1.2446	0.02482	2.2698	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002436	911.9	70.9	21.6
2	9.50	1.498	0.002514	940.9	70.1	21.2
3	9.00	1.419	0.002312	865.5	72.5	22.5
4	8.50	1.340	0.002371	887.6	71.9	22.2
13	7.00	1.104	0.002435	911.5	71.2	21.8
15	6.00	0.946	0.002715	1016.2	68.3	20.1
20	5.00	0.789	0.002903	1086.8	66.6	19.2
27	3.00	0.473	0.002619	980.5	69.1	20.6
28	2.50	0.394	0.002739	1025.1	67.9	20.0
32	2.00	0.315	0.002838	1062.4	67.0	19.5
38	0.50	0.079	0.003709	1388.4	61.3	16.3
40	0.40	0.063	0.004351	1628.8	58.5	14.7
41	0.35	0.055	0.004446	1664.1	58.1	14.5
44	0.20	0.032	0.004157	1556.2	59.2	15.1
49	-0.05	-0.008	0.004001	1497.8	59.9	15.5
50	-0.10	-0.016	0.003811	1426.4	60.7	16.0
52	-0.20	-0.032	0.003572	1337.2	62.0	16.6
53	-0.25	-0.039	0.003439	1287.3	62.7	17.1
54	-0.30	-0.047	0.002995	1121.1	65.7	18.7
56	-0.40	-0.063	0.002277	852.2	72.9	22.7
58	-0.50	-0.079	0.002039	763.1	76.3	24.6

ROTOR(SUCTION) CX/U=.780 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 34

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	41.9	151.4	0.0777	0.01435	0.2000	6.341
SI	5.5	46.2	1.2446	0.02482	2.2698	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

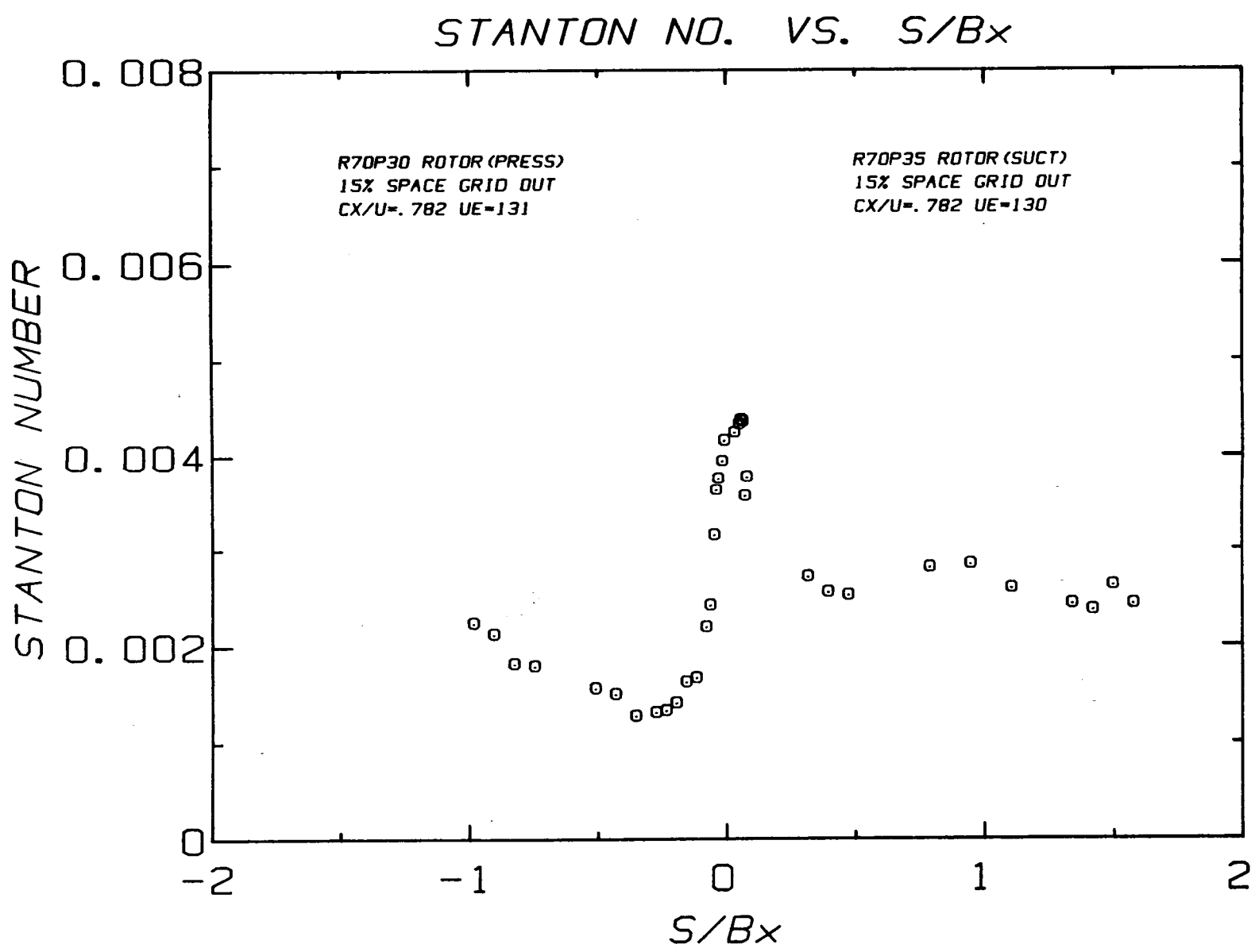
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.003137	1174.1	64.7	18.2
31	3.50	58.3	0.002943	1101.7	66.2	19.0
32	3.00	50.0	0.002838	1062.4	67.0	19.5
33	2.50	41.7	0.002759	1032.6	67.7	19.8
34	2.00	33.3	0.002769	1036.4	67.6	19.8

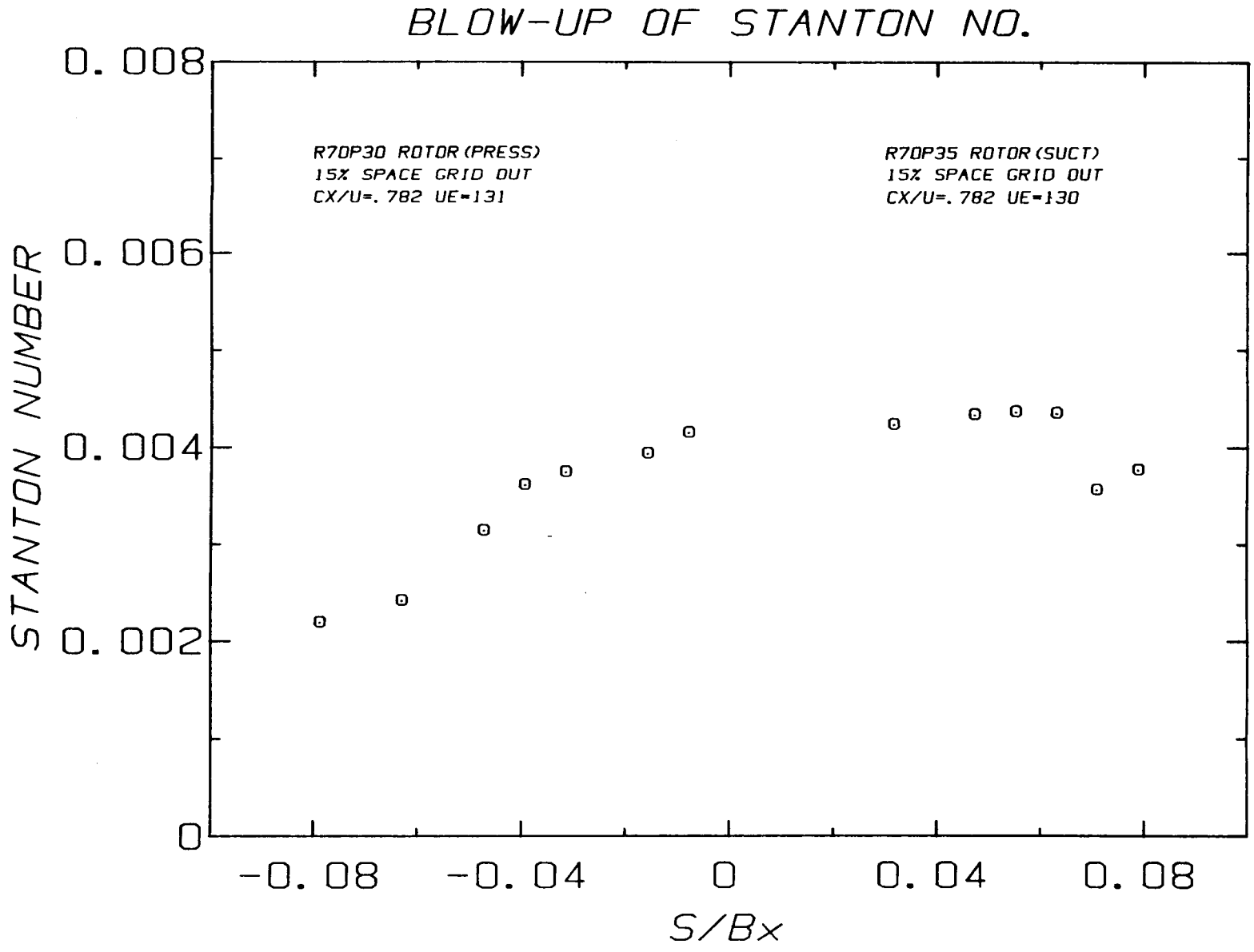
S/BX = 0.78852

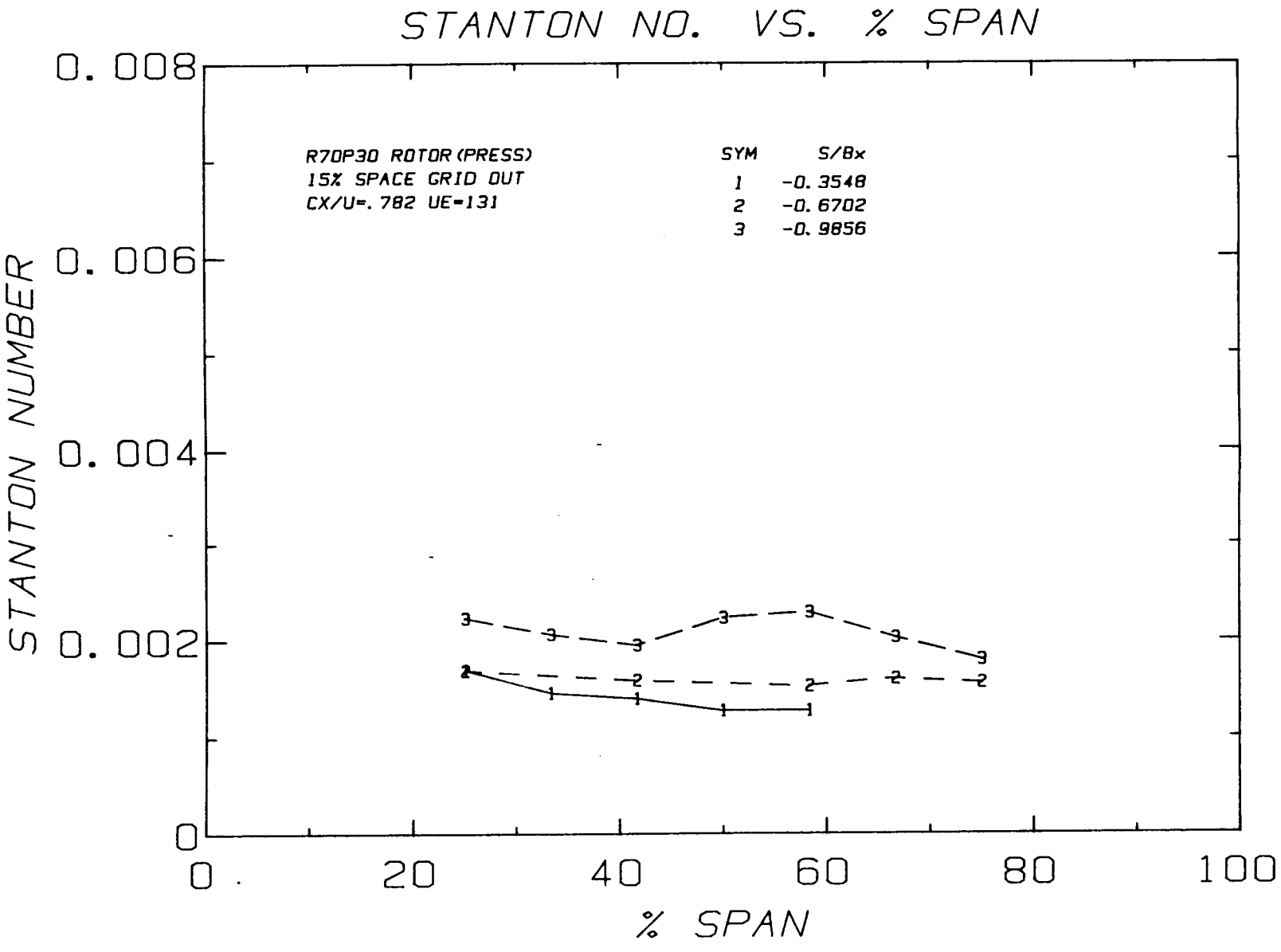
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.004009	1500.5	59.9	15.5
18	4.00	66.7	0.003060	1145.6	65.3	18.5
19	3.50	58.3	0.003040	1137.8	65.5	18.6
20	3.00	50.0	0.002903	1086.8	66.6	19.2
21	2.50	41.7	0.002845	1064.9	67.0	19.5
22	2.00	33.3	0.002780	1040.7	67.6	19.8
23	1.50	25.0	0.003387	1267.7	63.1	17.3

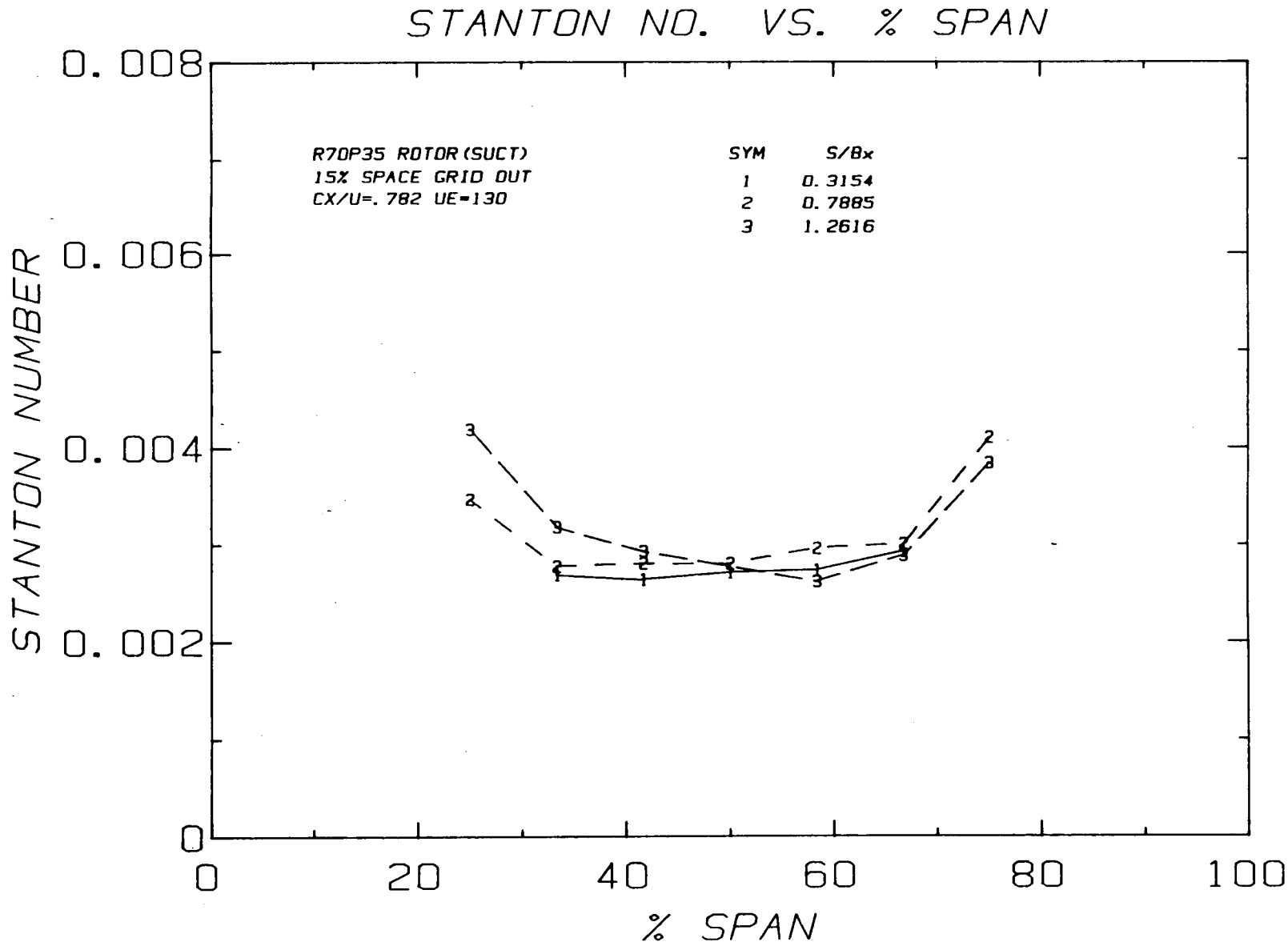
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003662	1370.6	61.7	16.5
6	4.00	66.7	0.002804	1049.7	67.5	19.7
7	3.50	58.3	0.002476	926.7	70.7	21.5
9	2.50	41.7	0.002824	1057.2	67.3	19.6
10	2.00	33.3	0.003107	1163.1	65.1	18.4
11	1.50	25.0	0.004022	1505.6	60.0	15.5


STANTON NO. VS. S/Bx
R70P30 ROTOR (PRESS)
15% SPACE GRID OUT
CX/U=. 782 UE=131
R70P35 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=. 782 UE=130
STANTON NUMBER
0. 008
0. 006
0. 004
0. 002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P30 ROTOR(PRESS)
15% SPACE GRID OUT
CX/U=.782 UE=131
R70P35 ROTOR(SUCT)
15% SPACE GRID OUT
CX/U=.782 UE=130
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P30 ROTOR (PRESS)
15% SPACE GRID OUT
CX/U=.782 UE=131
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P35 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=.782 UE=130
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.782 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 30

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	57.7	130.7	0.0760	0.01476	0.1600	6.341
SI	14.3	39.8	1.2177	0.02553	1.8158	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003556	1092.7	77.1	25.0
42	0.30	0.047	0.004332	1331.1	73.7	23.2
59	-0.75	-0.118	0.001668	512.5	97.4	36.3
60	-1.00	-0.158	0.001625	499.3	98.4	36.9
61	-1.25	-0.197	0.001410	433.3	104.1	40.1
62	-1.50	-0.237	0.001330	408.8	106.8	41.5
63	-1.75	-0.276	0.001311	402.9	107.5	41.9
67	-2.25	-0.355	0.001274	391.6	108.8	42.7
71	-2.75	-0.434	0.001501	461.3	101.7	38.7
72	-3.25	-0.513	0.001561	479.7	100.1	37.8
81	-4.75	-0.749	0.001791	550.4	94.9	35.0
82	-5.25	-0.828	0.001814	557.3	94.5	34.7
83	-5.75	-0.907	0.002119	651.2	89.5	32.0
87	-6.25	-0.986	0.002235	686.9	88.0	31.1

ROTOR(PRESSURE) CX/U=.782 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 30

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	57.7	130.7	0.0760	0.01476	0.1600	6.341
SI	14.3	39.8	1.2177	0.02553	1.8158	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001274	391.5	108.8	42.7
67	3.00	50.0	0.001274	391.6	108.8	42.7
68	2.50	41.7	0.001401	430.5	104.6	40.3
69	2.00	33.3	0.001458	447.9	102.9	39.4
70	1.50	25.0	0.001696	521.1	97.0	36.1

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001562	479.9	100.0	37.8
75	4.00	66.7	0.001603	492.7	99.0	37.2
76	3.50	58.3	0.001529	470.0	100.8	38.2
78	2.50	41.7	0.001589	488.2	99.3	37.4
80	1.50	25.0	0.001689	519.1	97.0	36.1

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.001798	552.4	94.7	34.8
85	4.00	66.7	0.002030	623.8	90.8	32.7
86	3.50	58.3	0.002294	704.8	87.3	30.7
87	3.00	50.0	0.002235	686.9	88.0	31.1
88	2.50	41.7	0.001950	599.1	92.1	33.4
89	2.00	33.3	0.002064	634.2	90.3	32.4
90	1.50	25.0	0.002234	686.4	88.0	31.1

ROTOR(SUCTION) CX/U=.782 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 35

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	47.0	129.9	0.0775	0.01448	0.1600	6.341
SI	8.3	39.6	1.2414	0.02504	1.8158	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002416	766.8	74.4	23.5
2	9.50	1.498	0.002612	829.2	72.5	22.5
3	9.00	1.419	0.002355	747.5	75.2	24.0
4	8.50	1.340	0.002418	767.6	74.7	23.7
13	7.00	1.104	0.002582	819.5	73.0	22.8
15	6.00	0.946	0.002834	899.5	70.8	21.6
20	5.00	0.789	0.002800	888.7	71.0	21.7
27	3.00	0.473	0.002511	797.2	73.7	23.1
28	2.50	0.394	0.002544	807.5	73.3	22.9
32	2.00	0.315	0.002708	859.6	71.7	22.1
38	0.50	0.079	0.003768	1196.0	64.9	18.3
40	0.40	0.063	0.004353	1381.8	62.6	17.0
41	0.35	0.055	0.004367	1386.2	62.5	17.0
44	0.20	0.032	0.004234	1344.0	63.0	17.2
49	-0.05	-0.008	0.004150	1317.2	63.3	17.4
50	-0.10	-0.016	0.003935	1249.2	64.2	17.9
52	-0.20	-0.032	0.003746	1189.1	65.0	18.4
53	-0.25	-0.039	0.003612	1146.5	65.7	18.7
54	-0.30	-0.047	0.003138	996.0	68.4	20.2
56	-0.40	-0.063	0.002411	765.4	74.5	23.6
58	-0.50	-0.079	0.002187	694.1	77.2	25.1

ROTOR(SUCTION) CX/U=.782 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 35

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	47.0	129.9	0.0775	0.01448	0.1600	6.341
SI	8.3	39.6	1.2414	0.02504	1.8158	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

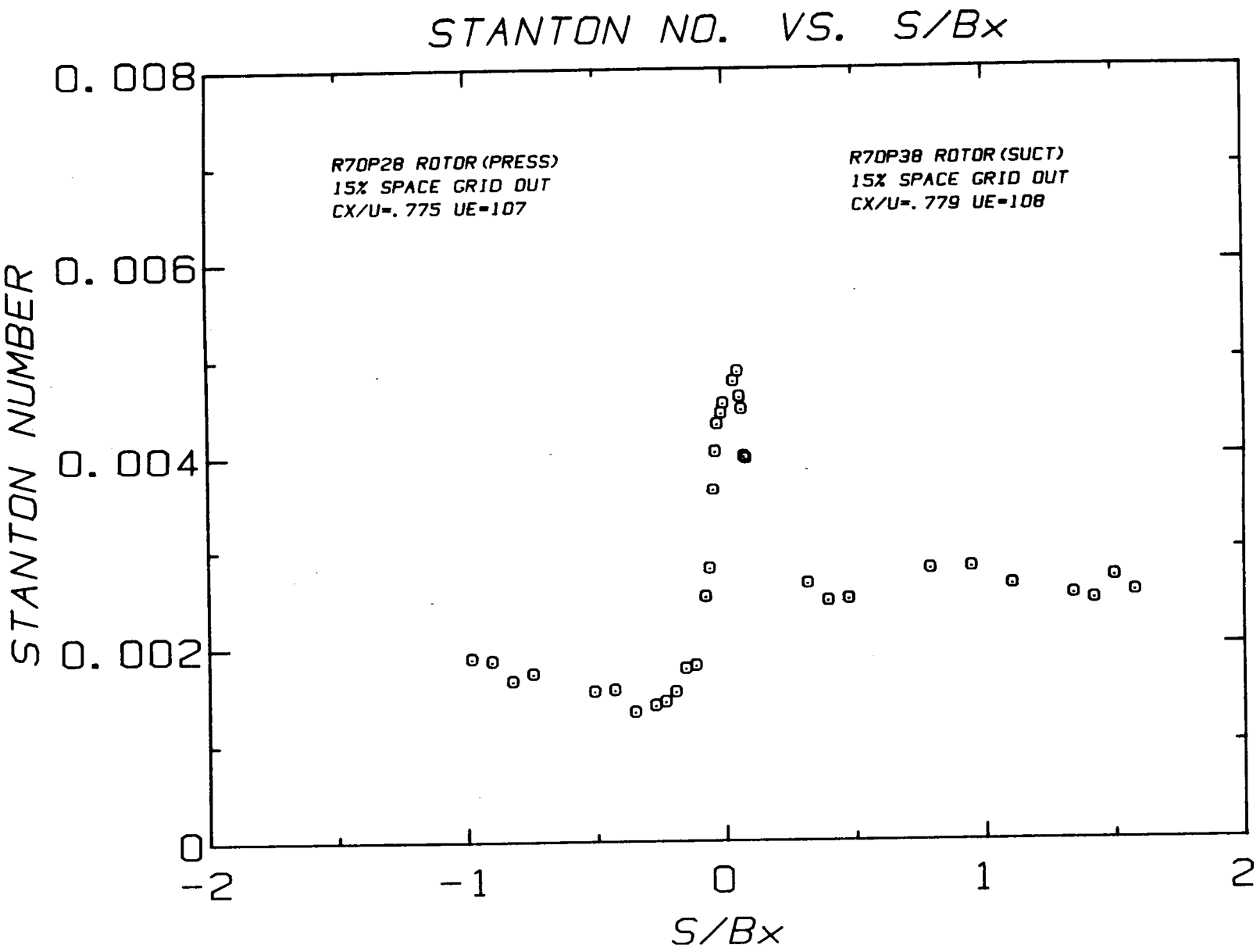
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.002924	928.3	70.0	21.1
31	3.50	58.3	0.002732	867.3	71.5	22.0
32	3.00	50.0	0.002708	859.6	71.7	22.1
33	2.50	41.7	0.002636	836.6	72.4	22.4
34	2.00	33.3	0.002686	852.7	71.9	22.2

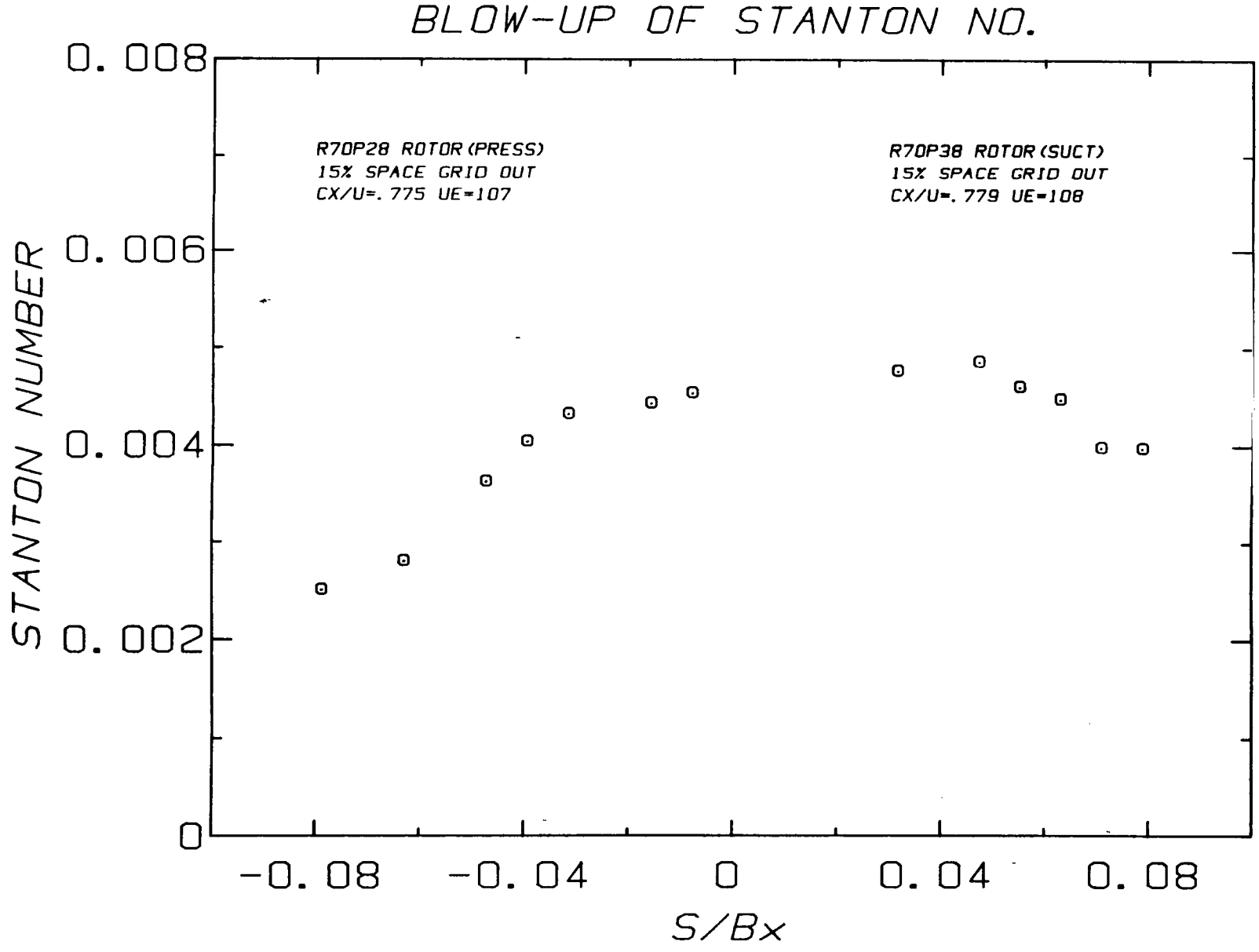
S/BX = 0.78852

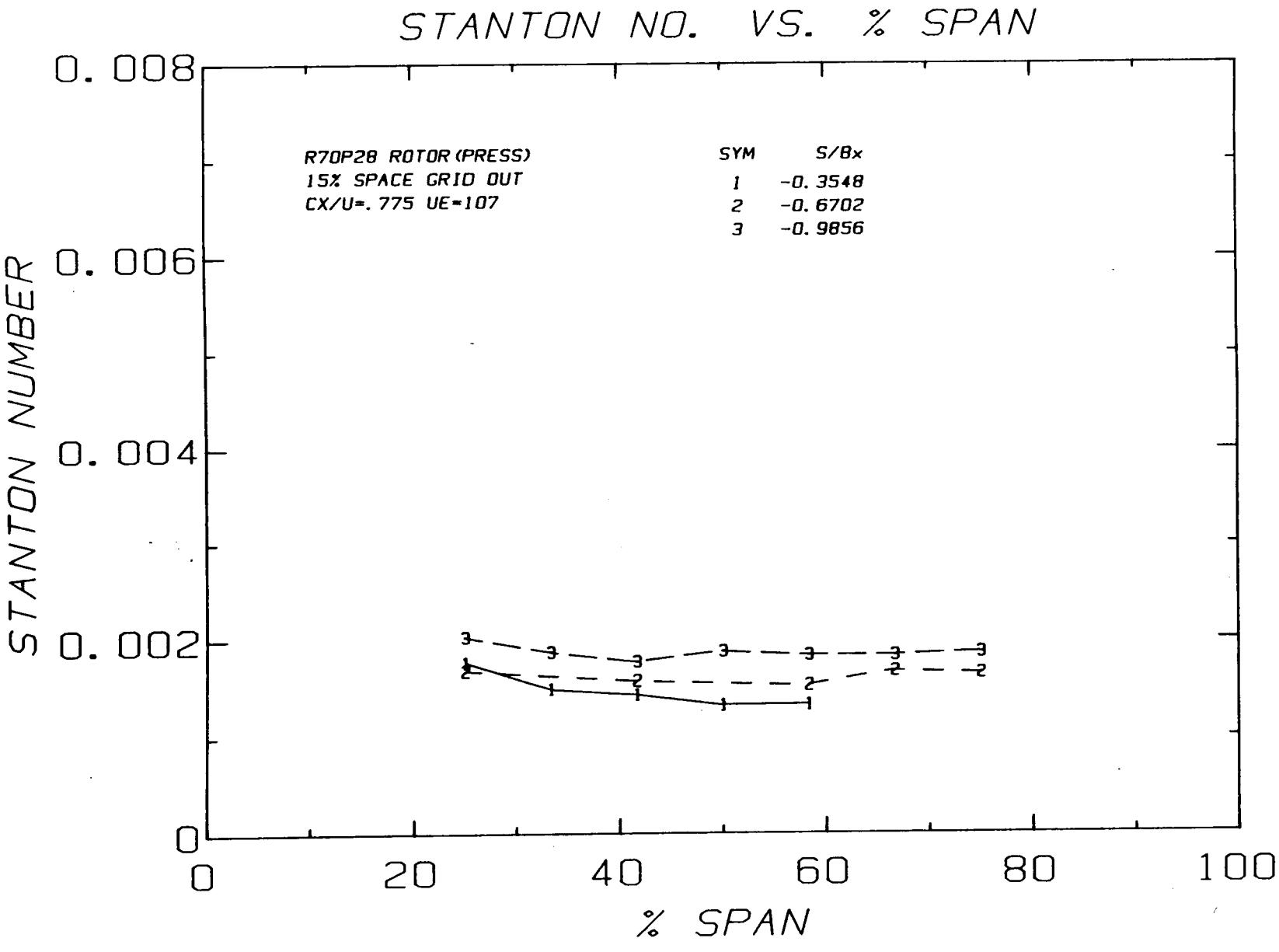
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.004104	1302.6	63.6	17.6
18	4.00	66.7	0.003004	953.5	69.5	20.8
19	3.50	58.3	0.002958	938.9	69.8	21.0
20	3.00	50.0	0.002800	888.7	71.0	21.7
21	2.50	41.7	0.002802	889.5	71.0	21.7
22	2.00	33.3	0.002771	879.7	71.3	21.8
23	1.50	25.0	0.003471	1101.7	66.5	19.2

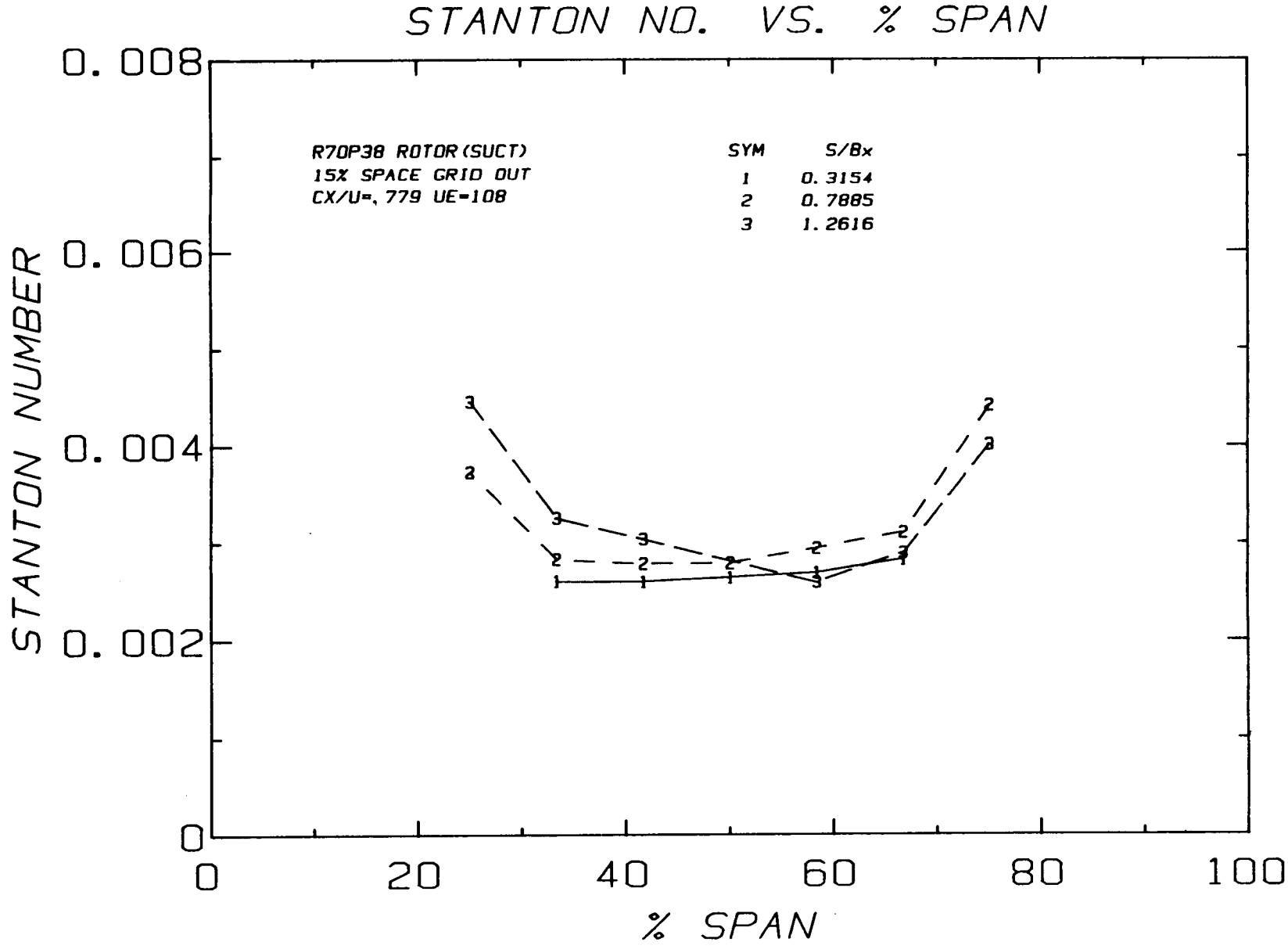
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003842	1219.5	64.8	18.2
6	4.00	66.7	0.002882	914.8	70.5	21.4
7	3.50	58.3	0.002619	831.2	72.7	22.6
9	2.50	41.7	0.002931	930.3	70.1	21.2
10	2.00	33.3	0.003182	1010.1	68.3	20.2
11	1.50	25.0	0.004189	1329.8	63.4	17.4


STANTON NO. VS. S/Bx
R70P28 ROTOR (PRESS)
15% SPACE GRID OUT
CX/U=.775 UE=107
R70P38 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=.779 UE=108
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P28 ROTOR (PRESS)
15% SPACE GRID OUT
CX/U=.775 UE=107
R70P38 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=.779 UE=108
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P28 ROTOR (PRESS)
15% SPACE GRID OUT
CX/U=.775 UE=107
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P38 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=, 779 UE=108
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.775 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 28

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	55.9	107.1	0.0768	0.01472	0.1460	6.341
SI	13.3	32.7	1.2297	0.02546	1.6570	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003982	1015.6	75.1	23.9
42	0.30	0.047	0.004863	1240.3	71.7	22.1
59	-0.75	-0.118	0.001799	458.9	96.3	35.7
60	-1.00	-0.158	0.001768	451.1	97.0	36.1
61	-1.25	-0.197	0.001528	389.6	103.0	39.4
62	-1.50	-0.237	0.001429	364.4	106.0	41.1
63	-1.75	-0.276	0.001391	354.9	107.2	41.8
67	-2.25	-0.355	0.001324	337.7	109.6	43.1
71	-2.75	-0.434	0.001552	396.0	102.4	39.1
72	-3.25	-0.513	0.001538	392.3	102.8	39.3
81	-4.75	-0.749	0.001723	439.6	98.0	36.7
82	-5.25	-0.828	0.001645	419.7	99.8	37.7
83	-5.75	-0.907	0.001856	473.3	95.2	35.1
87	-6.25	-0.986	0.001884	480.5	94.7	34.8

ROTOR(PRESSURE) CX/U=.775 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 28

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	55.9	107.1	0.0768	0.01472	0.1460	6.341
SI	13.3	32.7	1.2297	0.02546	1.6570	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001329	339.0	109.4	43.0
67	3.00	50.0	0.001324	337.7	109.6	43.1
68	2.50	41.7	0.001435	366.1	105.8	41.0
69	2.00	33.3	0.001494	381.0	104.1	40.0
70	1.50	25.0	0.001762	449.5	97.4	36.3

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001649	420.6	99.8	37.7
75	4.00	66.7	0.001673	426.8	99.2	37.3
76	3.50	58.3	0.001530	390.1	102.9	39.4
78	2.50	41.7	0.001579	402.8	101.5	38.6
80	1.50	25.0	0.001677	427.8	99.1	37.3

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.001868	476.5	95.0	35.0
85	4.00	66.7	0.001838	468.9	95.5	35.3
86	3.50	58.3	0.001841	469.6	95.5	35.3
87	3.00	50.0	0.001884	480.5	94.7	34.8
88	2.50	41.7	0.001773	452.3	96.8	36.0
89	2.00	33.3	0.001874	478.0	94.9	34.9
90	1.50	25.0	0.002032	518.2	92.1	33.4

ROTOR(SUCTION) CX/U=.779 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 38

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	56.2	107.5	0.0765	0.01472	0.1470	6.341
SI	13.5	32.8	1.2255	0.02546	1.6683	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002535	646.7	84.7	29.3
2	9.50	1.498	0.002699	688.5	83.2	28.5
3	9.00	1.419	0.002458	627.0	85.9	29.9
4	8.50	1.340	0.002513	641.1	85.5	29.7
13	7.00	1.104	0.002622	668.8	84.5	29.1
15	6.00	0.946	0.002805	715.7	82.7	28.2
20	5.00	0.789	0.002789	711.4	82.9	28.3
27	3.00	0.473	0.002475	631.4	86.0	30.0
28	2.50	0.394	0.002457	626.7	86.2	30.1
32	2.00	0.315	0.002640	673.6	84.2	29.0
38	0.50	0.079	0.003970	1012.8	75.0	23.9
40	0.40	0.063	0.004479	1142.5	73.0	22.8
41	0.35	0.055	0.004605	1174.8	72.5	22.5
44	0.20	0.032	0.004768	1216.3	72.0	22.2
49	-0.05	-0.008	0.004537	1157.3	72.8	22.7
50	-0.10	-0.016	0.004433	1130.8	73.2	22.9
52	-0.20	-0.032	0.004322	1102.5	73.6	23.1
53	-0.25	-0.039	0.004036	1029.7	74.7	23.7
54	-0.30	-0.047	0.003621	923.8	76.8	24.9
56	-0.40	-0.063	0.002801	714.6	82.4	28.0
58	-0.50	-0.079	0.002504	638.7	85.3	29.6

ROTOR(SUCTION) CX/U=.779 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 38

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	56.2	107.5	0.0765	0.01472	0.1470	6.341
SI	13.5	32.8	1.2255	0.02546	1.6683	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

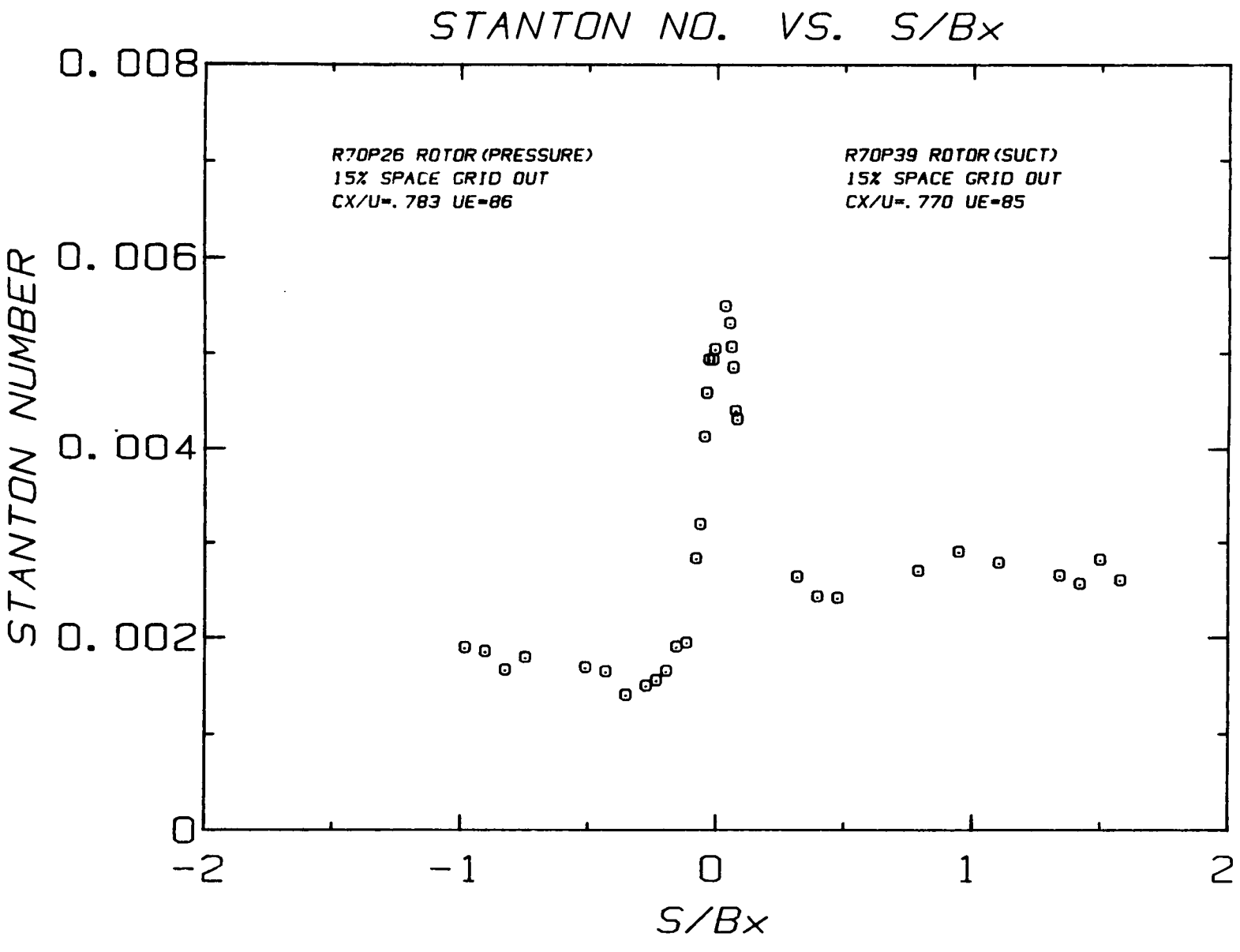
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.002827	721.1	82.4	28.0
31	3.50	58.3	0.002687	685.6	83.7	28.7
32	3.00	50.0	0.002640	673.6	84.2	29.0
33	2.50	41.7	0.002600	663.2	84.6	29.2
34	2.00	33.3	0.002603	664.1	84.5	29.2

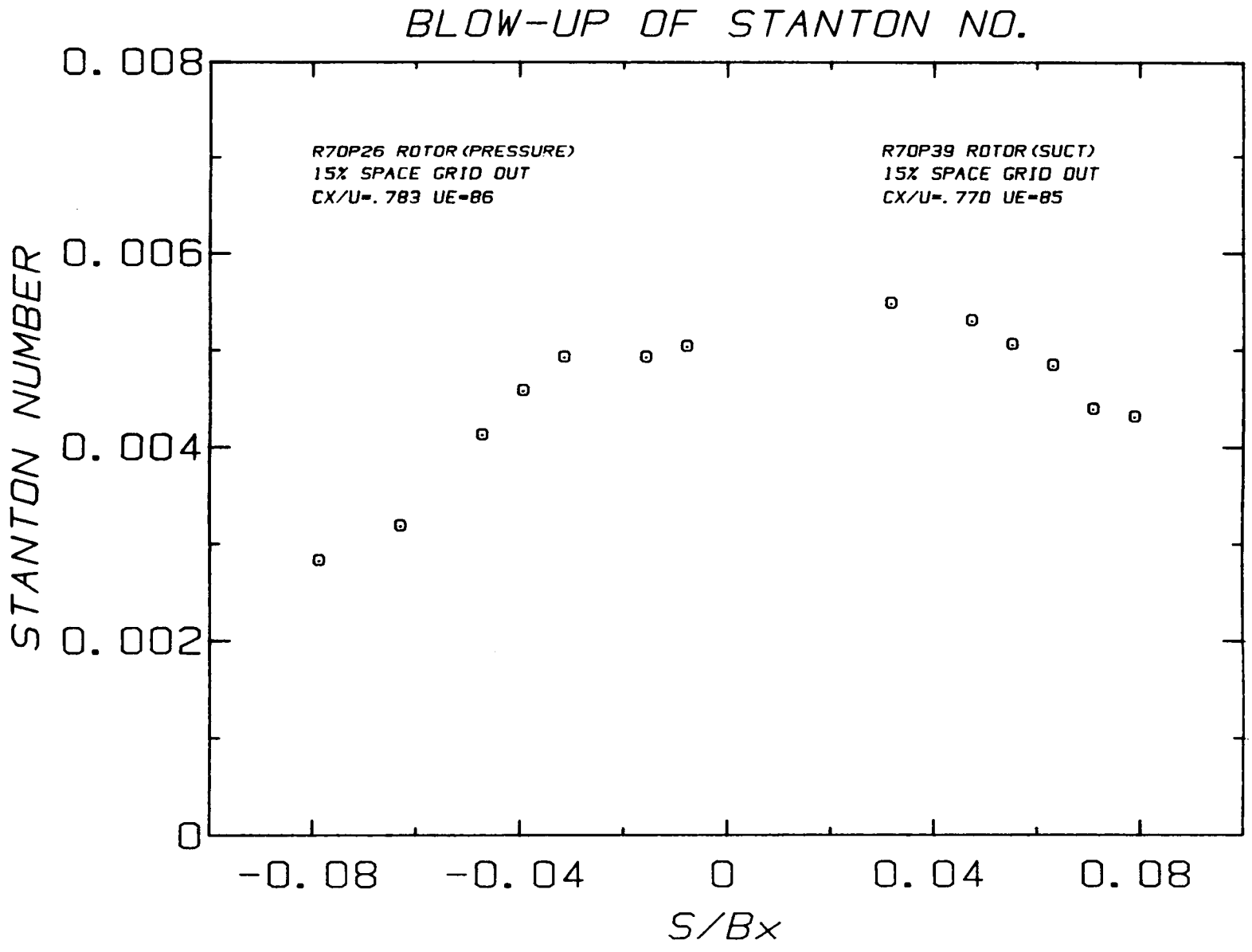
S/BX = 0.78852

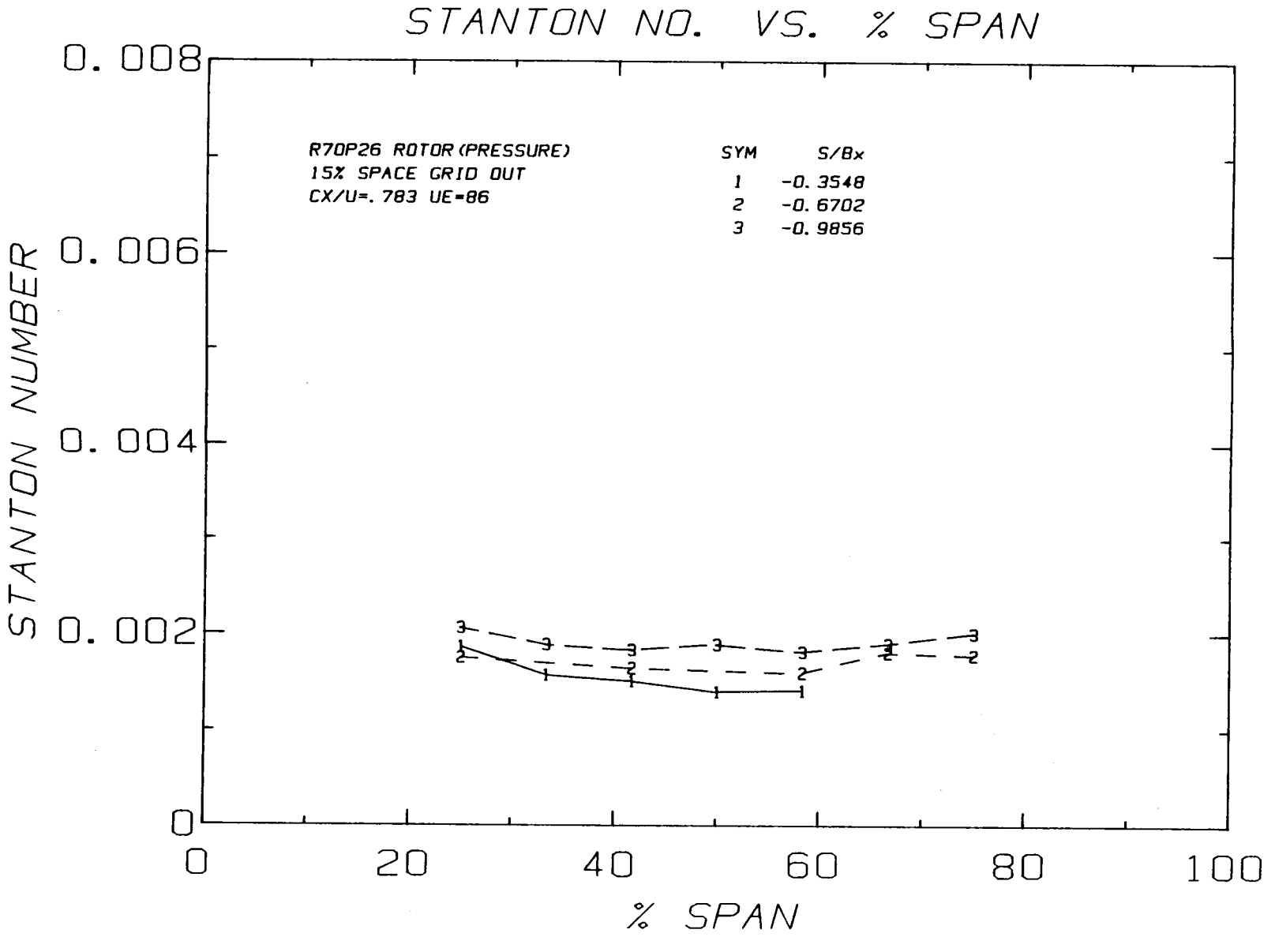
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.004415	1126.2	73.4	23.0
18	4.00	66.7	0.003104	791.9	80.3	26.8
19	3.50	58.3	0.002942	750.4	81.6	27.5
20	3.00	50.0	0.002789	711.4	82.9	28.3
21	2.50	41.7	0.002786	710.8	82.9	28.3
22	2.00	33.3	0.002831	722.3	82.5	28.1
23	1.50	25.0	0.003734	952.4	76.4	24.7

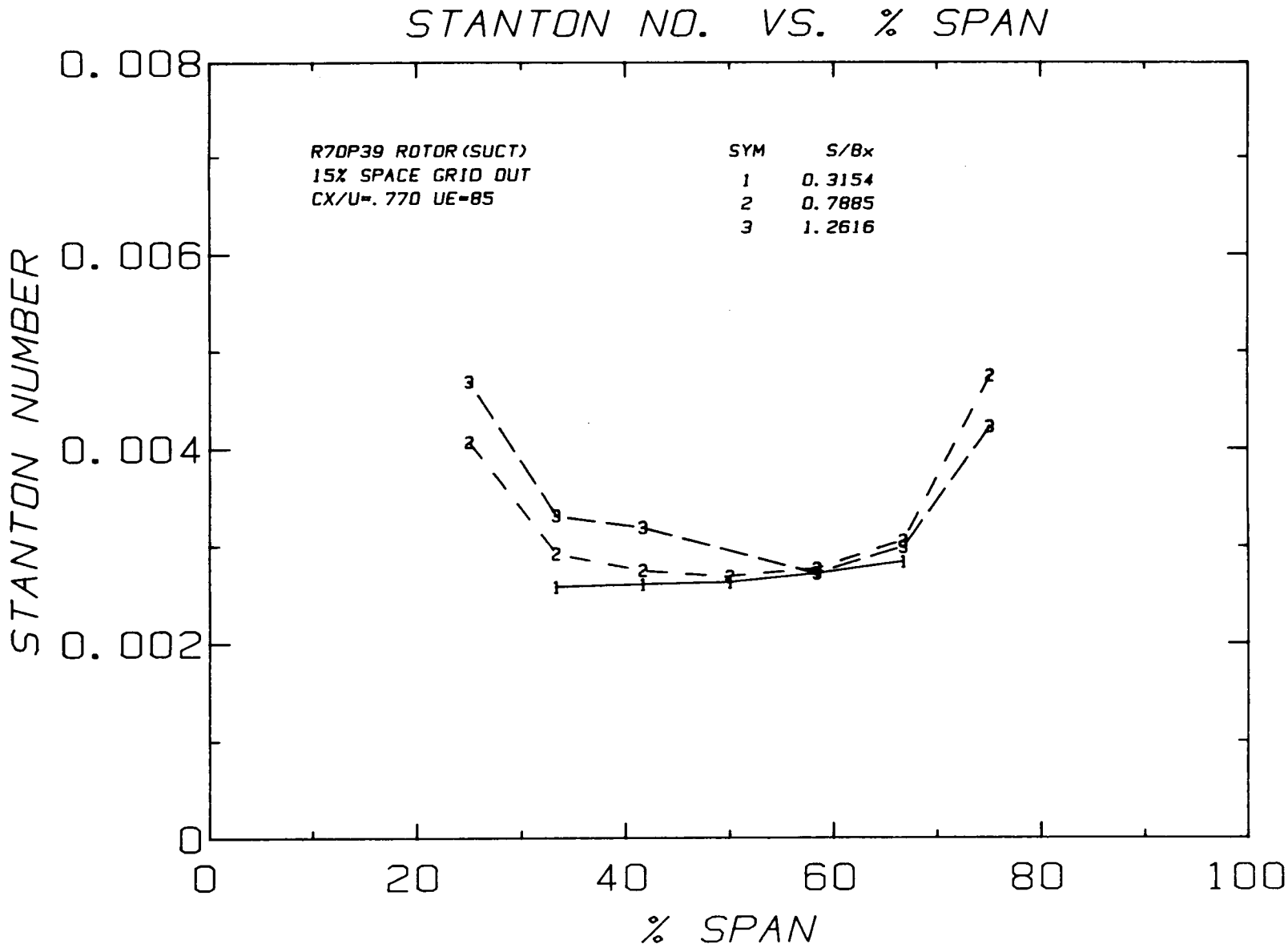
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.004010	1023.0	75.1	23.9
6	4.00	66.7	0.002894	738.2	81.9	27.7
7	3.50	58.3	0.002592	661.2	84.7	29.3
9	2.50	41.7	0.003039	775.3	80.8	27.1
10	2.00	33.3	0.003260	831.5	79.2	26.2
11	1.50	25.0	0.004457	1137.0	73.3	22.9


STANTON NO. VS. S/Bx
R70P26 ROTOR (PRESSURE)
15% SPACE GRID OUT
CX/U=.783 UE=86
R70P39 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=.770 UE=85
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P26 ROTOR (PRESSURE)
15% SPACE GRID OUT
CX/U=.783 UE=86
R70P39 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=.770 UE=85
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P26 ROTOR (PRESSURE)
15% SPACE GRID OUT
CX/U=.783 UE=86
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P39 ROTOR(SUCT)
15% SPACE GRID OUT
CX/U=.770 UE=85
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.783 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 26

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	49.0	86.4	0.0781	0.01454	0.1420	6.341
SI	9.4	26.3	1.2507	0.02515	1.6116	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.004384	928.8	69.7	21.0
42	0.30	0.047	0.005302	1123.4	66.3	19.0
59	-0.75	-0.118	0.001934	409.8	93.5	34.2
60	-1.00	-0.158	0.001893	401.1	94.5	34.7
61	-1.25	-0.197	0.001639	347.2	100.8	38.2
62	-1.50	-0.237	0.001542	326.7	103.8	39.9
63	-1.75	-0.276	0.001488	315.2	105.6	40.9
67	-2.25	-0.355	0.001393	295.2	109.0	42.8
71	-2.75	-0.434	0.001634	346.3	101.1	38.4
72	-3.25	-0.513	0.001678	355.4	99.9	37.7
81	-4.75	-0.749	0.001784	378.1	97.0	36.1
82	-5.25	-0.828	0.001652	350.0	100.3	37.9
83	-5.75	-0.907	0.001848	391.6	95.4	35.2
87	-6.25	-0.986	0.001888	400.0	94.5	34.7

ROTOR(PRESSURE) CX/U=.783 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 26

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	49.0	86.4	0.0781	0.01454	0.1420	6.341
SI	9.4	26.3	1.2507	0.02515	1.6116	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001406	297.9	108.5	42.5
67	3.00	50.0	0.001393	295.2	109.0	42.8
68	2.50	41.7	0.001505	318.9	105.1	40.6
69	2.00	33.3	0.001569	332.5	103.1	39.5
70	1.50	25.0	0.001863	394.8	95.3	35.2

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001778	376.6	97.2	36.2
75	4.00	66.7	0.001805	382.4	96.5	35.9
76	3.50	58.3	0.001594	337.7	102.1	38.9
78	2.50	41.7	0.001641	347.8	100.7	38.2
80	1.50	25.0	0.001751	370.9	97.8	36.6

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002008	425.3	92.1	33.4
85	4.00	66.7	0.001894	401.3	94.4	34.7
86	3.50	58.3	0.001812	383.9	96.2	35.7
87	3.00	50.0	0.001888	400.0	94.5	34.7
88	2.50	41.7	0.001831	387.9	95.8	35.4
89	2.00	33.3	0.001885	399.3	94.6	34.8
90	1.50	25.0	0.002062	436.9	91.1	32.8

ROTOR(SUCTION) CX/U=.770 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 39

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	58.1	85.0	0.0767	0.01477	0.1430	6.341
SI	14.5	25.9	1.2294	0.02555	1.6229	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002590	522.1	92.3	33.5
2	9.50	1.498	0.002807	565.9	90.0	32.2
3	9.00	1.419	0.002550	514.2	93.2	34.0
4	8.50	1.340	0.002640	532.3	92.4	33.6
13	7.00	1.104	0.002773	559.1	91.1	32.9
15	6.00	0.946	0.002891	582.9	90.0	32.2
20	5.00	0.789	0.002686	541.6	92.2	33.5
27	3.00	0.473	0.002401	484.1	96.0	35.5
28	2.50	0.394	0.002417	487.3	95.6	35.4
32	2.00	0.315	0.002626	529.5	92.8	33.8
38	0.50	0.079	0.004302	867.5	79.7	26.5
40	0.40	0.063	0.004838	975.5	77.4	25.2
41	0.35	0.055	0.005053	1018.9	76.6	24.8
44	0.20	0.032	0.005476	1104.2	75.3	24.0
49	-0.05	-0.008	0.005028	1013.8	76.7	24.9
50	-0.10	-0.016	0.004916	991.2	77.1	25.1
52	-0.20	-0.032	0.004917	991.4	77.1	25.1
53	-0.25	-0.039	0.004573	922.0	78.5	25.8
54	-0.30	-0.047	0.004114	829.5	80.7	27.0
56	-0.40	-0.063	0.003174	640.0	86.9	30.5
58	-0.50	-0.079	0.002817	567.9	90.2	32.4

ROTOR(SUCTION) CX/U=.770 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 39

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	58.1	85.0	0.0767	0.01477	0.1430	6.341
SI	14.5	25.9	1.2294	0.02555	1.6229	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

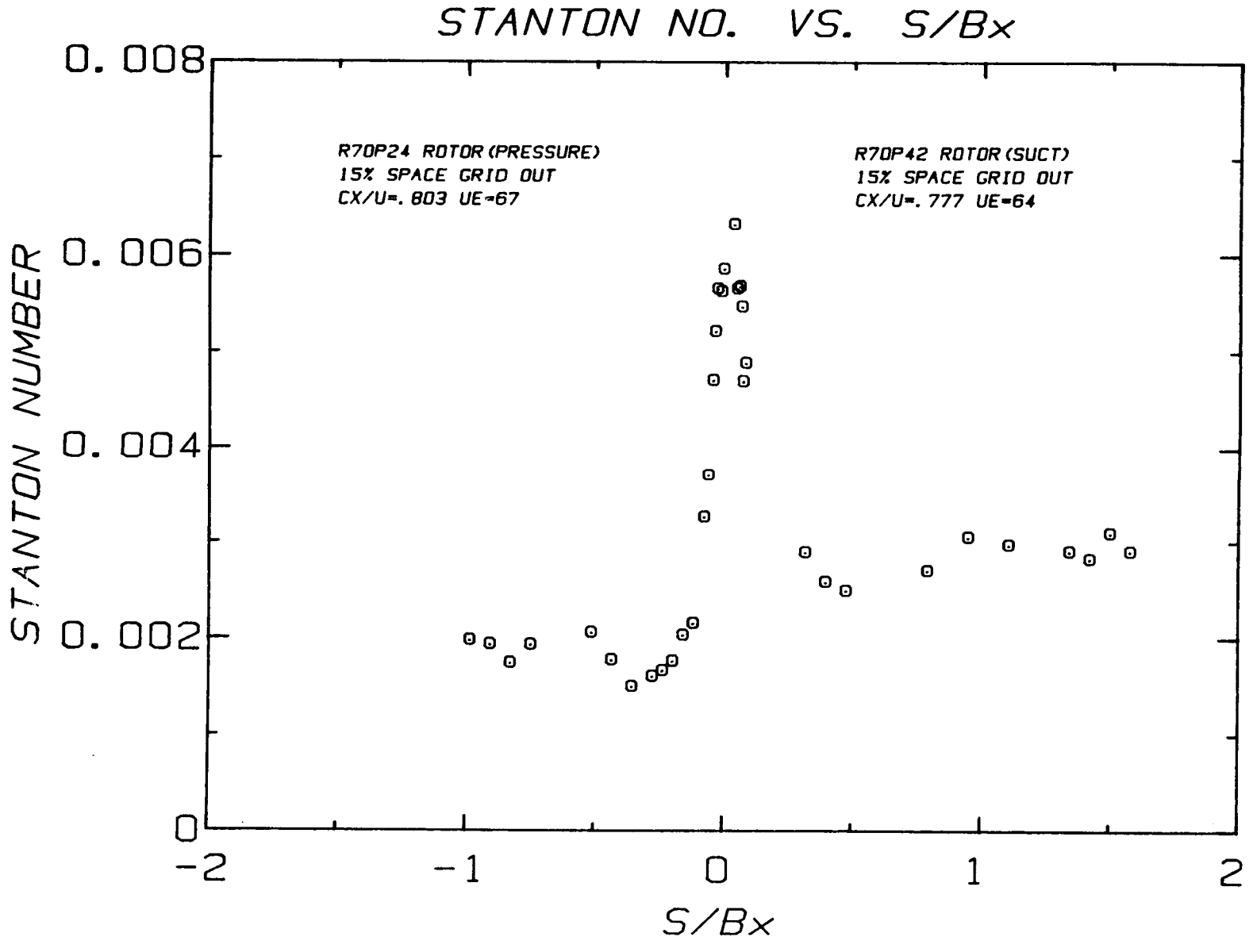
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.002837	572.0	90.4	32.4
31	3.50	58.3	0.002715	547.4	91.7	33.2
32	3.00	50.0	0.002626	529.5	92.8	33.8
33	2.50	41.7	0.002605	525.2	93.1	33.9
34	2.00	33.3	0.002578	519.8	93.4	34.1

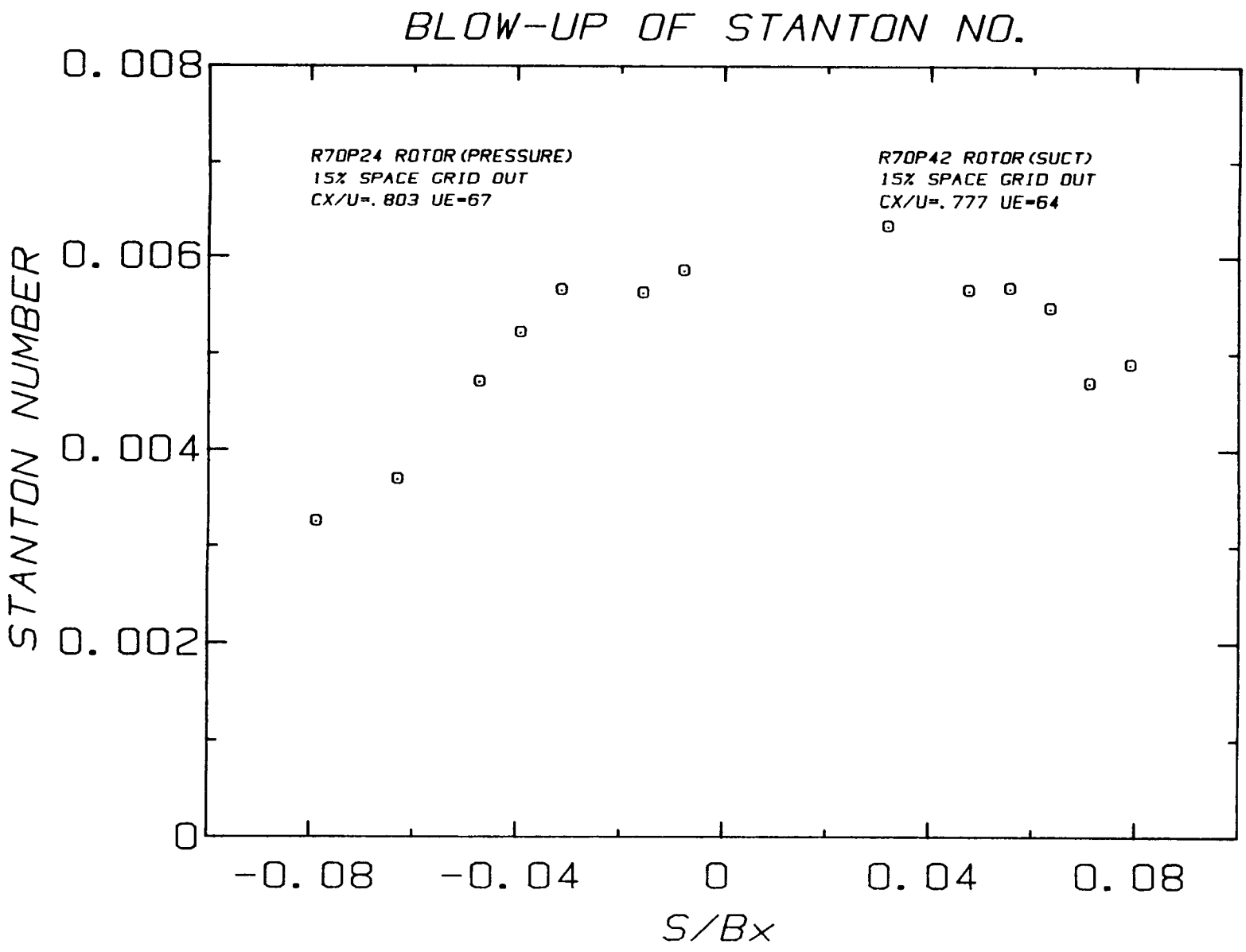
S/BX = 0.78852

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.004748	957.4	78.0	25.6
18	4.00	66.7	0.003053	615.6	88.4	31.3
19	3.50	58.3	0.002767	557.9	91.3	32.9
20	3.00	50.0	0.002686	541.6	92.2	33.5
21	2.50	41.7	0.002750	554.5	91.5	33.0
22	2.00	33.3	0.002921	589.0	89.6	32.0
23	1.50	25.0	0.004068	820.2	81.2	27.3

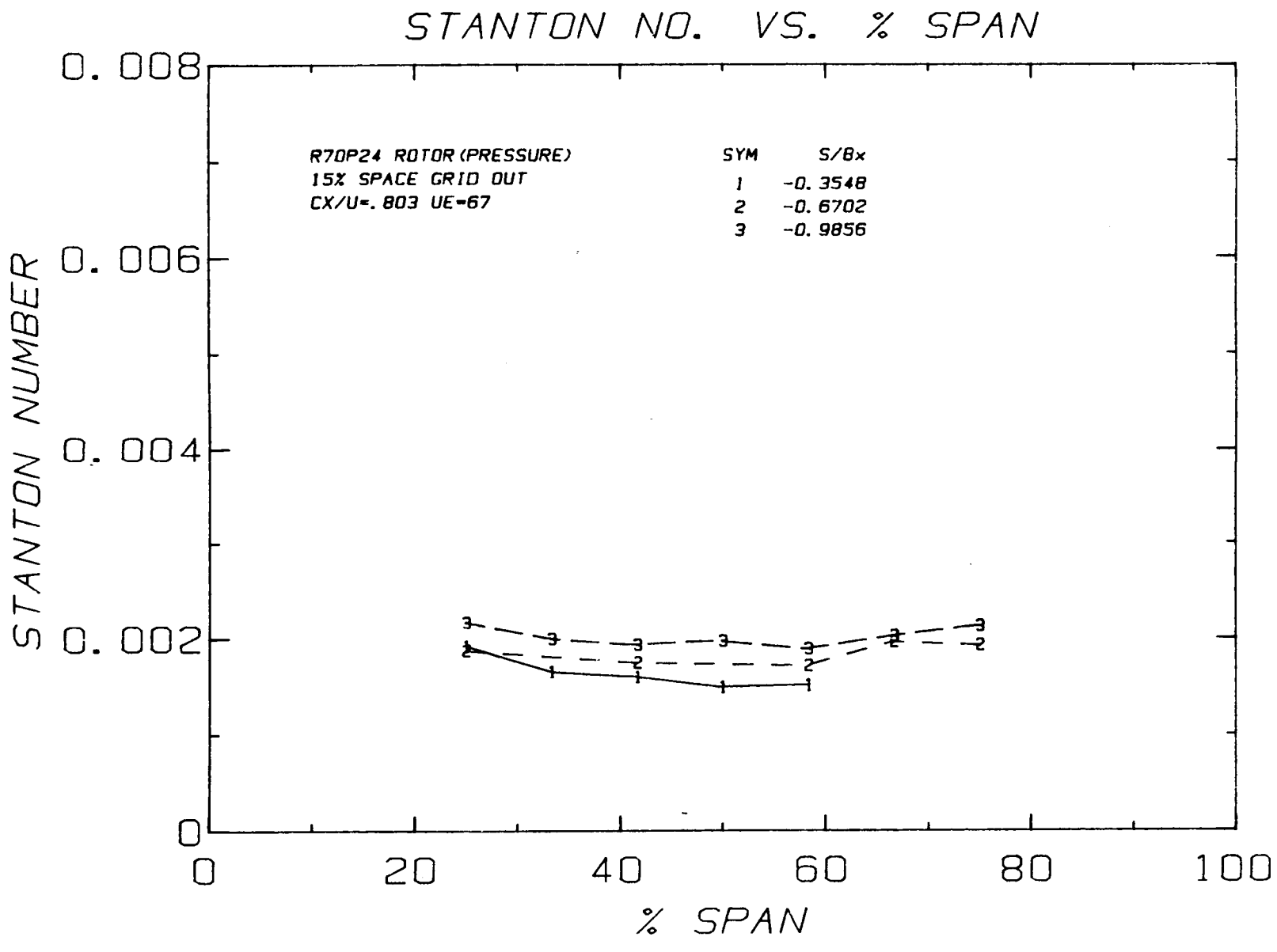
S/BX = 1.26163

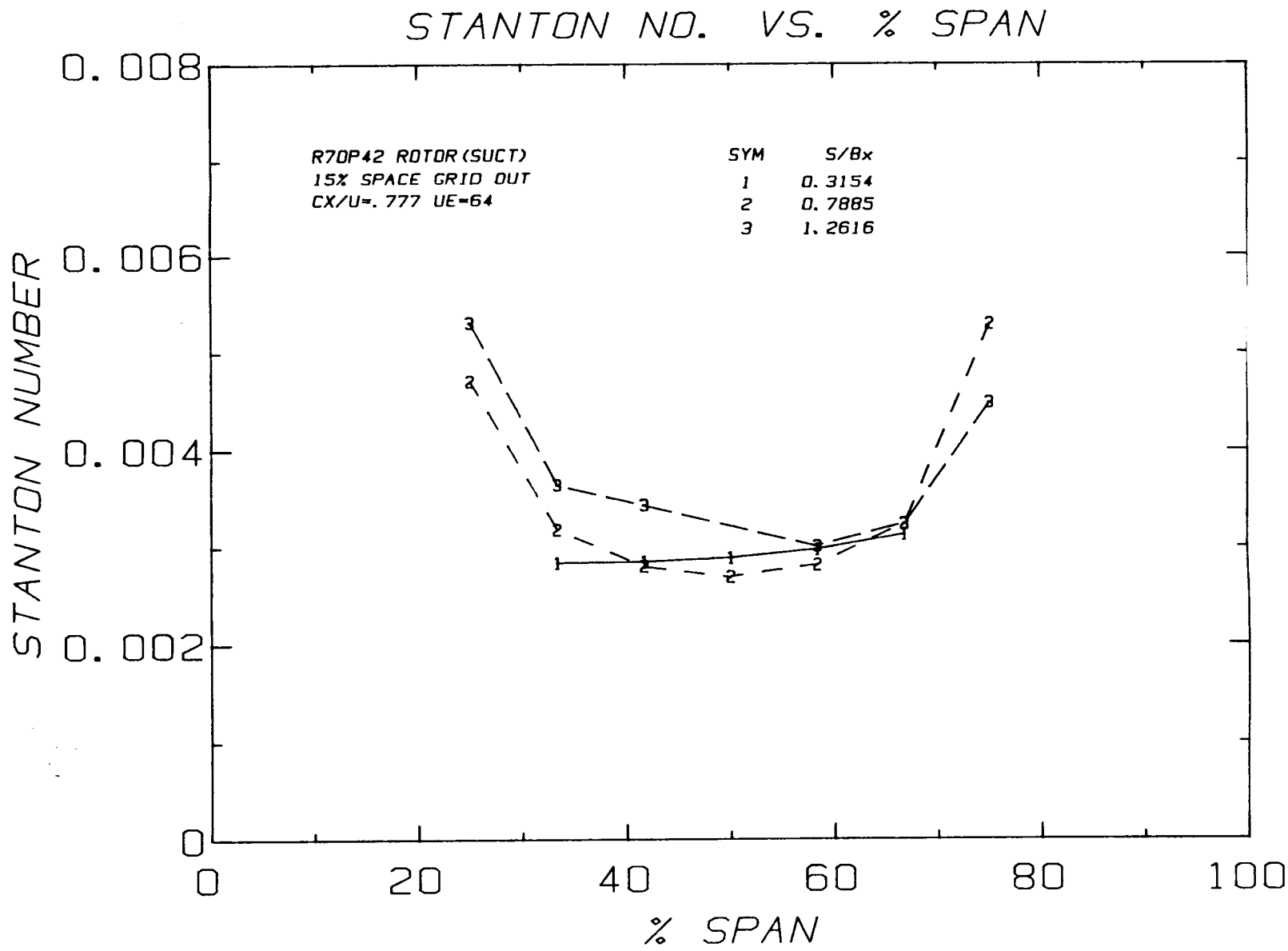
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.004228	852.4	80.3	26.8
6	4.00	66.7	0.002986	602.1	88.9	31.6
7	3.50	58.3	0.002721	548.6	91.6	33.1
9	2.50	41.7	0.003191	643.4	87.0	30.6
10	2.00	33.3	0.003313	668.0	86.0	30.0
11	1.50	25.0	0.004688	945.3	78.2	25.7


STANTON NO. VS. S/Bx
R70P24 ROTOR (PRESSURE)
15% SPACE GRID OUT
CX/U=.803 UE=67
R70P42 ROTOR (SUCT)
15% SPACE GRID OUT
CX/U=.777 UE=64
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P24 ROTOR(PRESSURE)
15% SPACE GRID OUT
CX/U=.803 UE=67
R70P42 ROTOR(SUCT)
15% SPACE GRID OUT
CX/U=.777 UE=64
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx

C-3


STANTON NO. VS. % SPAN
R70P24 ROTOR (PRESSURE)
15% SPACE GRID OUT
CX/U=.803 UE=67
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P42 ROTOR(SUCT)
15% SPACE GRID OUT
CX/U=.777 UE=64
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.803 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 24

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	45.0	66.9	0.0790	0.01443	0.1600	6.341
SI	7.2	20.4	1.2657	0.02496	1.8158	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.004683	783.7	72.9	22.7
42	0.30	0.047	0.005647	945.1	68.4	20.2
59	-0.75	-0.118	0.002147	359.2	102.4	39.1
60	-1.00	-0.158	0.002022	338.4	105.7	40.9
61	-1.25	-0.197	0.001755	293.8	113.8	45.5
62	-1.50	-0.237	0.001656	277.2	117.5	47.5
63	-1.75	-0.276	0.001596	267.1	120.0	48.9
67	-2.25	-0.355	0.001489	249.3	124.5	51.4
71	-2.75	-0.434	0.001769	296.1	113.6	45.3
72	-3.25	-0.513	0.002051	343.2	105.2	40.7
81	-4.75	-0.749	0.001923	321.8	108.4	42.4
82	-5.25	-0.828	0.001736	290.5	114.0	45.6
83	-5.75	-0.907	0.001929	322.8	107.9	42.2
87	-6.25	-0.986	0.001972	330.1	106.6	41.4

ROTOR(PRESSURE) CX/U=.803 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 24

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	45.0	66.9	0.0790	0.01443	0.1600	6.341
SI	7.2	20.4	1.2657	0.02496	1.8158	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001509	252.5	123.7	50.9
67	3.00	50.0	0.001489	249.3	124.5	51.4
68	2.50	41.7	0.001599	267.5	119.9	48.8
69	2.00	33.3	0.001652	276.4	117.8	47.7
70	1.50	25.0	0.001922	321.6	108.8	42.7

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001927	322.6	108.3	42.4
75	4.00	66.7	0.001963	328.6	107.3	41.8
76	3.50	58.3	0.001718	287.5	115.0	46.1
78	2.50	41.7	0.001747	292.4	113.9	45.5
80	1.50	25.0	0.001876	314.0	109.8	43.2

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002127	356.0	102.7	39.3
85	4.00	66.7	0.002021	338.2	105.3	40.7
86	3.50	58.3	0.001888	315.9	108.9	42.8
87	3.00	50.0	0.001972	330.1	106.6	41.4
88	2.50	41.7	0.001932	323.4	107.7	42.1
89	2.00	33.3	0.001996	334.1	106.0	41.1
90	1.50	25.0	0.002167	362.7	101.8	38.8

ROTOR(SUCTION) CX/U=.777 GRID OUT 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 42

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	62.7	64.3	0.0763	0.01490	0.1100	6.341
SI	17.1	19.6	1.2215	0.02577	1.2484	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002897	435.2	93.5	34.2
2	9.50	1.498	0.003089	464.2	92.0	33.3
3	9.00	1.419	0.002819	423.5	94.8	34.9
4	8.50	1.340	0.002898	435.5	94.4	34.7
13	7.00	1.104	0.002965	445.5	94.1	34.5
15	6.00	0.946	0.003047	457.8	93.4	34.1
20	5.00	0.789	0.002696	405.1	97.0	36.1
27	3.00	0.473	0.002485	373.4	99.6	37.6
28	2.50	0.394	0.002578	387.4	98.3	36.9
32	2.00	0.315	0.002887	433.8	94.8	34.9
38	0.50	0.079	0.004880	733.2	82.2	27.9
40	0.40	0.063	0.005464	821.0	80.2	26.8
41	0.35	0.055	0.005672	852.1	79.6	26.4
44	0.20	0.032	0.006314	948.6	78.0	25.5
49	-0.05	-0.008	0.005850	879.0	79.1	26.2
50	-0.10	-0.016	0.005618	844.0	79.8	26.5
52	-0.20	-0.032	0.005648	848.5	79.7	26.5
53	-0.25	-0.039	0.005205	782.1	81.0	27.2
54	-0.30	-0.047	0.004694	705.3	82.9	28.3
56	-0.40	-0.063	0.003686	553.9	88.0	31.1
58	-0.50	-0.079	0.003248	487.9	91.1	32.8

, ROTOR(SUCTION) CX/U=.777 GRID OUT 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 42

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	62.7	64.3	0.0763	0.01490	0.1100	6.341
SI	17.1	19.6	1.2215	0.02577	1.2484	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

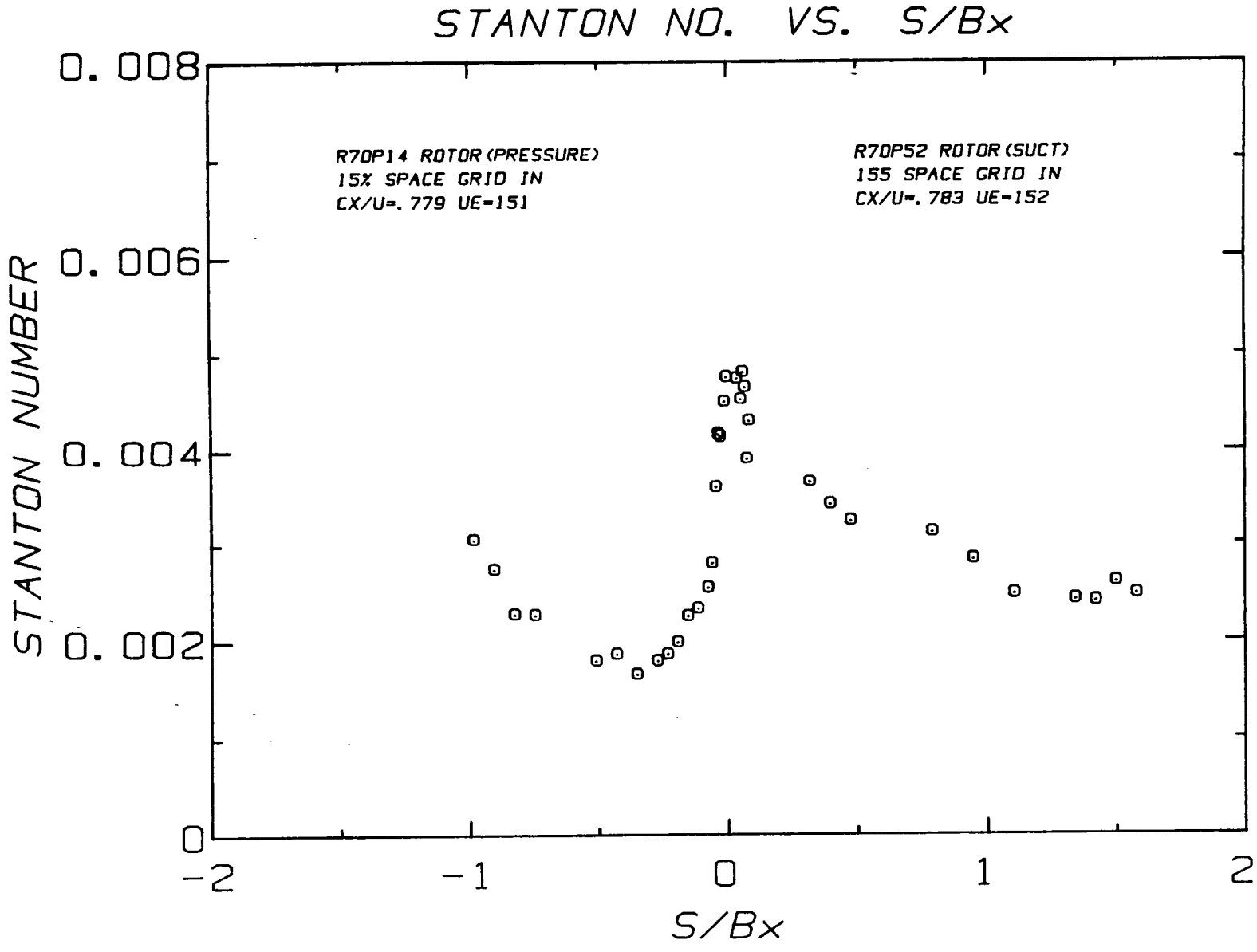
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.003128	470.0	92.5	33.6
31	3.50	58.3	0.002975	446.9	93.9	34.4
32	3.00	50.0	0.002887	433.8	94.8	34.9
33	2.50	41.7	0.002847	427.8	95.2	35.1
34	2.00	33.3	0.002838	426.4	95.3	35.2

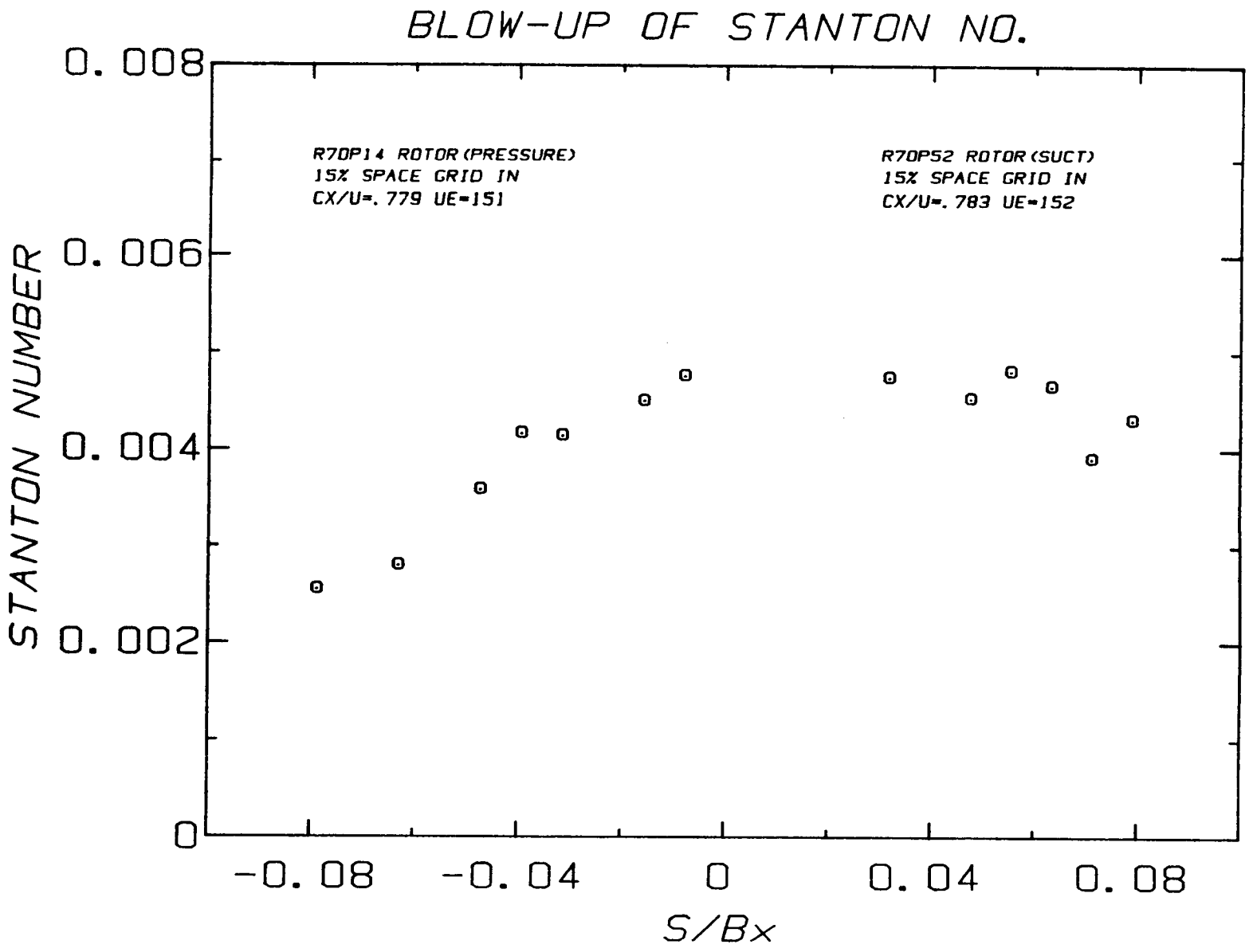
S/BX = 0.78852

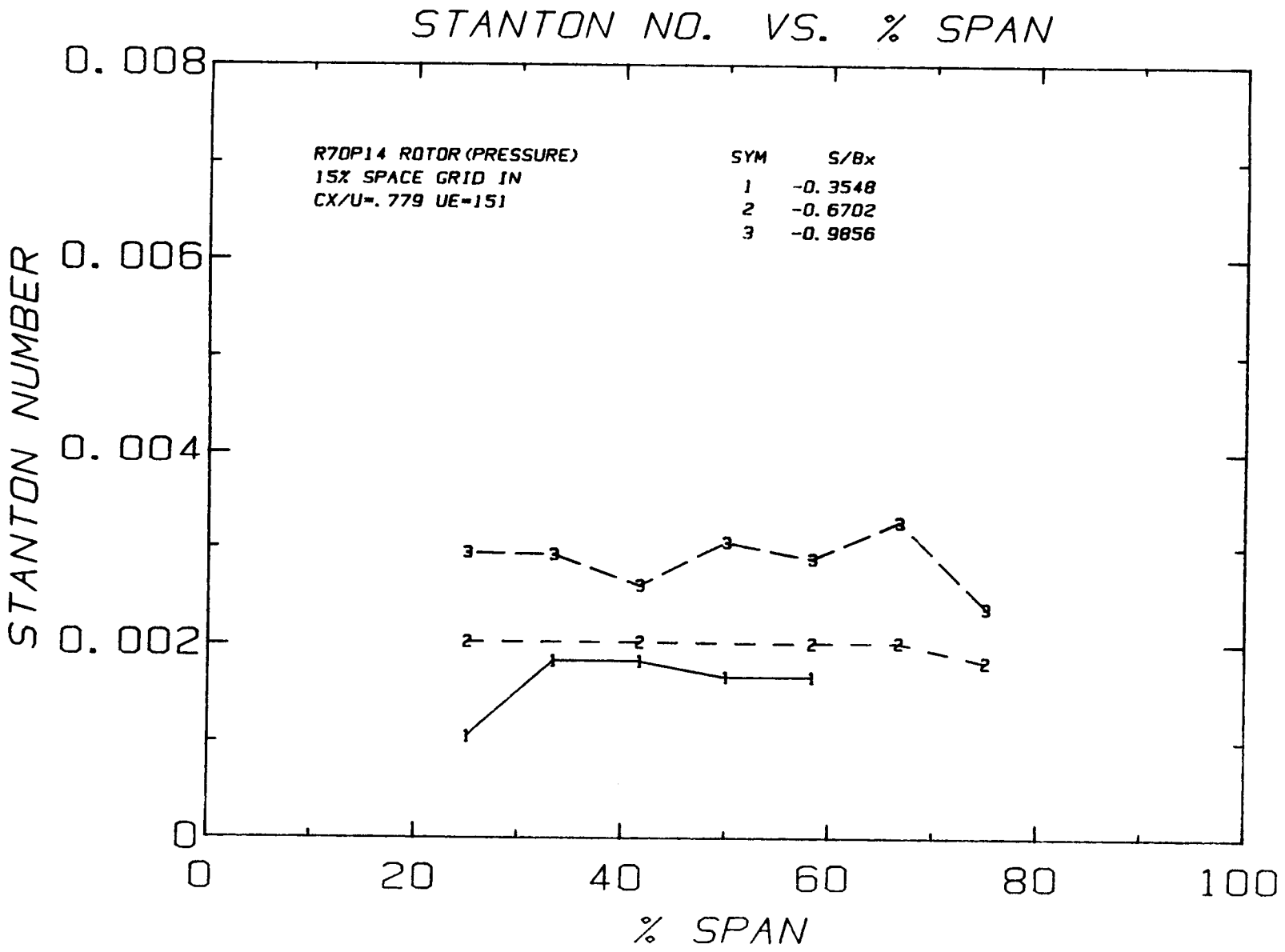
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.005291	795.0	81.0	27.2
18	4.00	66.7	0.003240	486.8	91.7	33.2
19	3.50	58.3	0.002817	423.3	95.7	35.4
20	3.00	50.0	0.002696	405.1	97.0	36.1
21	2.50	41.7	0.002805	421.5	95.8	35.4
22	2.00	33.3	0.003184	478.5	92.2	33.4
23	1.50	25.0	0.004710	707.6	83.2	28.4

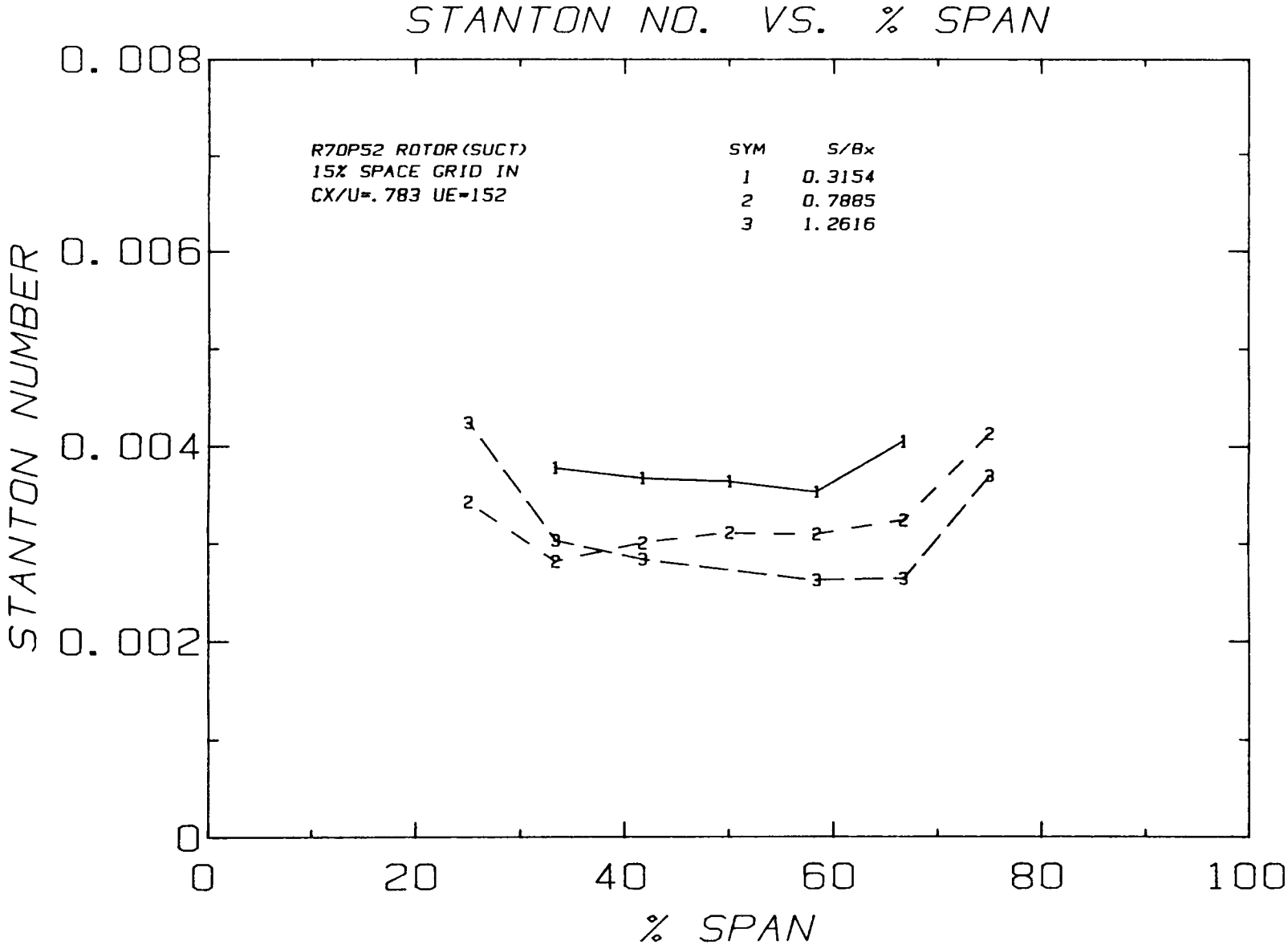
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.004483	673.5	84.1	28.9
6	4.00	66.7	0.003242	487.1	91.5	33.0
7	3.50	58.3	0.003010	452.3	93.5	34.2
9	2.50	41.7	0.003438	516.6	90.0	32.2
10	2.00	33.3	0.003646	547.9	88.6	31.4
11	1.50	25.0	0.005310	797.8	80.9	27.2


STANTON NO. VS. S/Bx
R70P14 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.779 UE=151
R70P52 ROTOR (SUCT)
155 SPACE GRID IN
CX/U=.783 UE=152
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R7OP14 ROTOR(PRESSURE)
15% SPACE GRID IN
CX/U=.779 UE=151
R7OP52 ROTOR(SUCT)
15% SPACE GRID IN
CX/U=.783 UE=152
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P14 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.779 UE=151
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P52 ROTOR(SUCT)
15% SPACE GRID IN
CX/U=.783 UE=152
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.779 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 14

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	29.8	150.7	0.0794	0.01404	0.2820	6.341
SI	-1.2	45.9	1.2721	0.02428	3.2004	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003907	1518.3	55.2	12.9
42	0.30	0.047	0.004529	1760.1	51.8	11.0
59	-0.75	-0.118	0.002338	908.5	71.7	22.0
60	-1.00	-0.158	0.002260	878.4	73.0	22.8
61	-1.25	-0.197	0.001988	772.6	78.7	26.0
62	-1.50	-0.237	0.001867	725.6	81.8	27.7
63	-1.75	-0.276	0.001796	698.0	83.8	28.8
67	-2.25	-0.355	0.001659	644.7	88.0	31.1
71	-2.75	-0.434	0.001869	726.3	81.8	27.7
72	-3.25	-0.513	0.001798	698.8	83.7	28.7
81	-4.75	-0.749	0.002273	883.5	72.9	22.7
82	-5.25	-0.828	0.002282	886.7	72.8	22.6
83	-5.75	-0.907	0.002742	1065.7	65.8	18.8
87	-6.25	-0.986	0.003052	1186.1	62.3	16.9

ROTOR(PRESSURE) CX/U=.779 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 14

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	29.8	150.7	0.0794	0.01404	0.2820	6.341
SI	-1.2	45.9	1.2721	0.02428	3.2004	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001656	643.6	88.1	31.2
67	3.00	50.0	0.001659	644.7	88.0	31.1
68	2.50	41.7	0.001825	709.2	83.0	28.3
69	2.00	33.3	0.001825	709.2	83.0	28.3
70	1.50	25.0	0.001045	406.3	119.5	48.6

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001813	704.6	83.3	28.5
75	4.00	66.7	0.002016	783.6	78.1	25.6
76	3.50	58.3	0.002009	780.8	78.3	25.7
78	2.50	41.7	0.002024	786.6	77.9	25.5
80	1.50	25.0	0.002023	786.4	78.0	25.5

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002371	921.4	71.3	21.8
85	4.00	66.7	0.003261	1267.2	60.3	15.7
86	3.50	58.3	0.002876	1117.9	64.3	17.9
87	3.00	50.0	0.003052	1186.1	62.3	16.9
88	2.50	41.7	0.002605	1012.4	67.7	19.8
89	2.00	33.3	0.002920	1135.0	63.8	17.6
90	1.50	25.0	0.002942	1143.2	63.5	17.5

ROTOR(SUCTION) CX/U=.783 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 52

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	44.2	151.5	0.0774	0.01442	0.2750	6.341
SI	6.8	46.2	1.2403	0.02494	3.1210	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002466	916.0	83.3	28.5
2	9.50	1.498	0.002591	962.4	81.6	27.5
3	9.00	1.419	0.002390	887.9	84.7	29.3
4	8.50	1.340	0.002410	895.2	84.5	29.2
13	7.00	1.104	0.002473	918.7	83.6	28.7
15	6.00	0.946	0.002831	1051.4	78.8	26.0
20	5.00	0.789	0.003112	1156.0	75.8	24.3
27	3.00	0.473	0.003231	1200.0	74.6	23.7
28	2.50	0.394	0.003402	1263.9	73.1	22.8
32	2.00	0.315	0.003640	1351.9	71.2	21.8
38	0.50	0.079	0.004301	1597.6	67.1	19.5
40	0.40	0.063	0.004651	1727.7	65.4	18.6
41	0.35	0.055	0.004805	1784.9	64.8	18.2
44	0.20	0.032	0.004738	1760.0	65.1	18.4
49	-0.05	-0.008	0.004753	1765.4	65.0	18.3
50	-0.10	-0.016	0.004497	1670.5	66.1	19.0
52	-0.20	-0.032	0.004136	1536.2	68.0	20.0
53	-0.25	-0.039	0.004161	1545.5	67.9	19.9
54	-0.30	-0.047	0.003579	1329.6	71.6	22.0
56	-0.40	-0.063	0.002793	1037.6	79.1	26.1
58	-0.50	-0.079	0.002544	945.2	82.3	28.0

ROTOR(SUCTION) CX/U=.783 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 52

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	44.2	151.5	0.0774	0.01442	0.2750	6.341
SI	6.8	46.2	1.2403	0.02494	3.1210	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

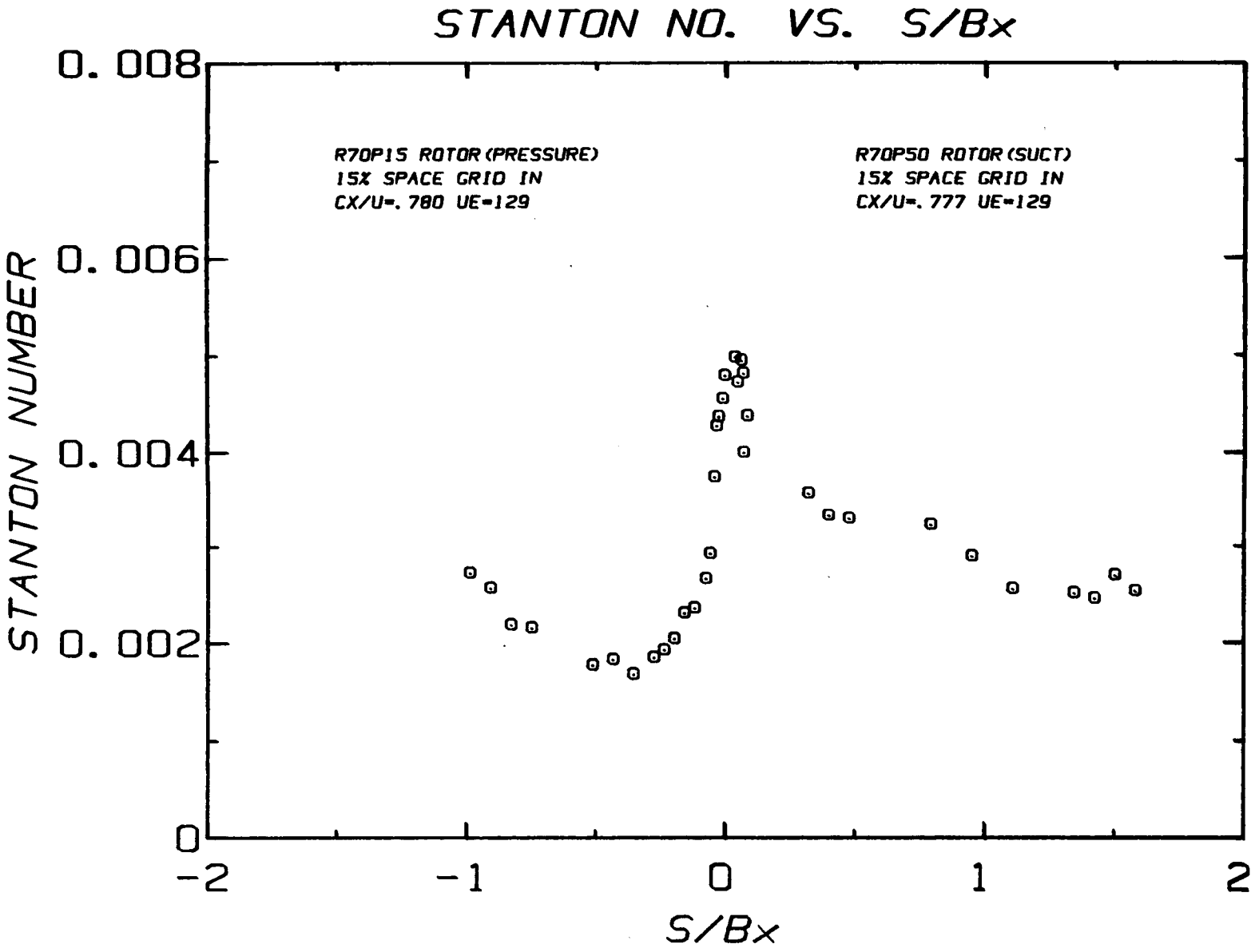
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.004050	1504.2	68.6	20.3
31	3.50	58.3	0.003530	1311.2	72.1	22.3
32	3.00	50.0	0.003640	1351.9	71.2	21.8
33	2.50	41.7	0.003675	1364.9	71.0	21.7
34	2.00	33.3	0.003782	1404.7	70.2	21.2

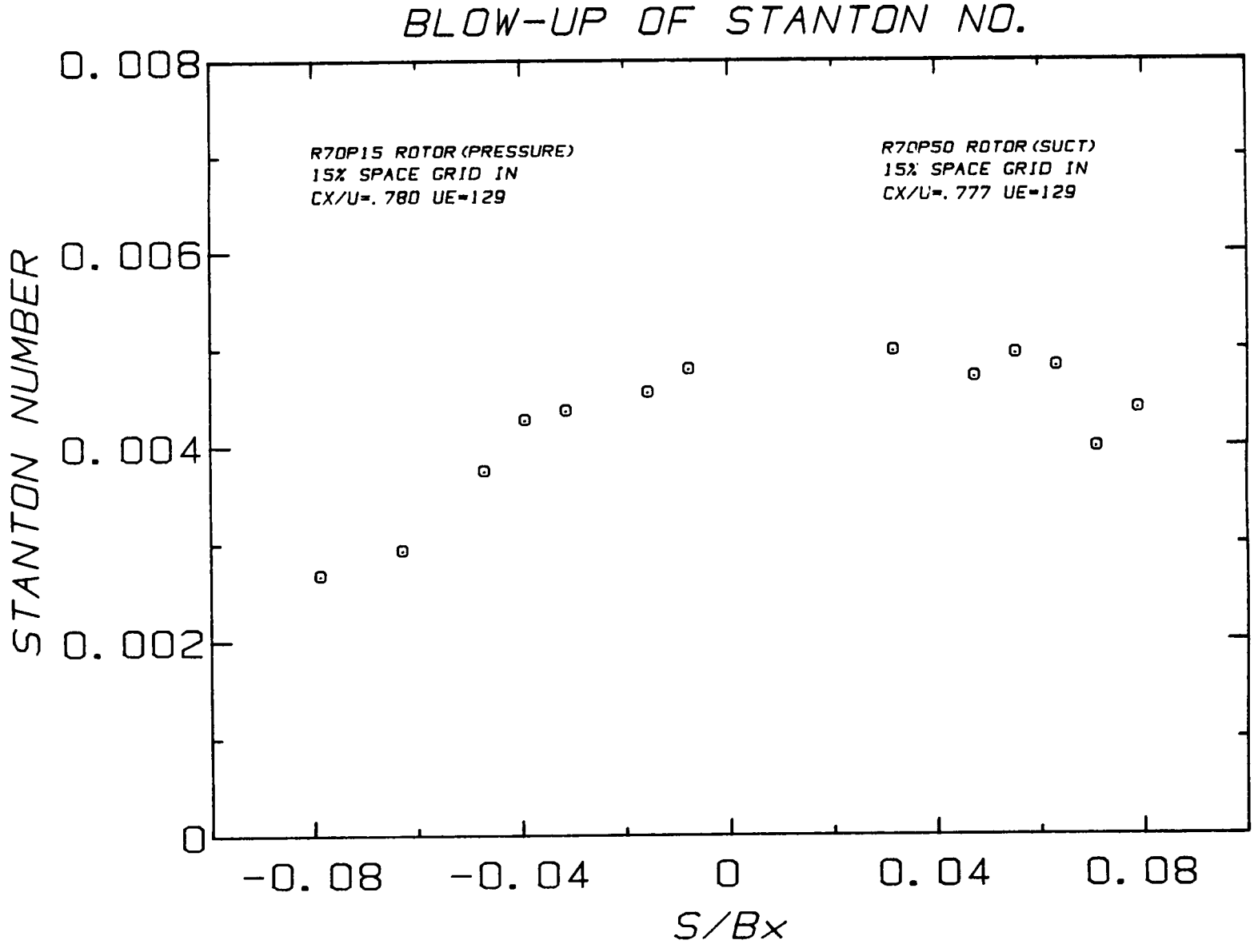
S/BX = 0.78852

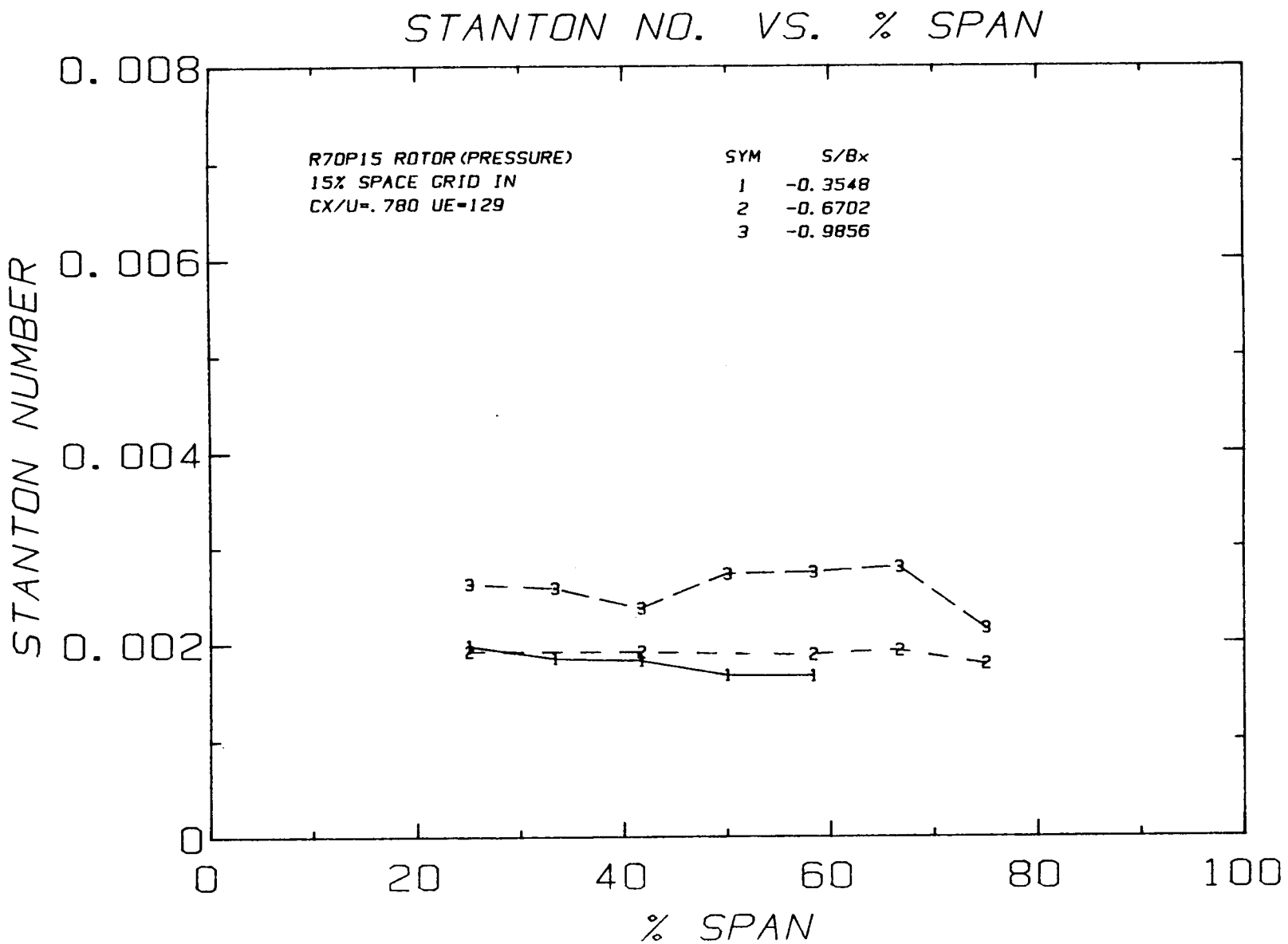
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.004130	1534.2	68.1	20.1
18	4.00	66.7	0.003237	1202.2	74.6	23.7
19	3.50	58.3	0.003095	1149.8	75.9	24.4
20	3.00	50.0	0.003112	1156.0	75.8	24.3
21	2.50	41.7	0.003003	1115.6	76.9	24.9
22	2.00	33.3	0.002814	1045.3	79.0	26.1
23	1.50	25.0	0.003426	1272.7	72.9	22.7

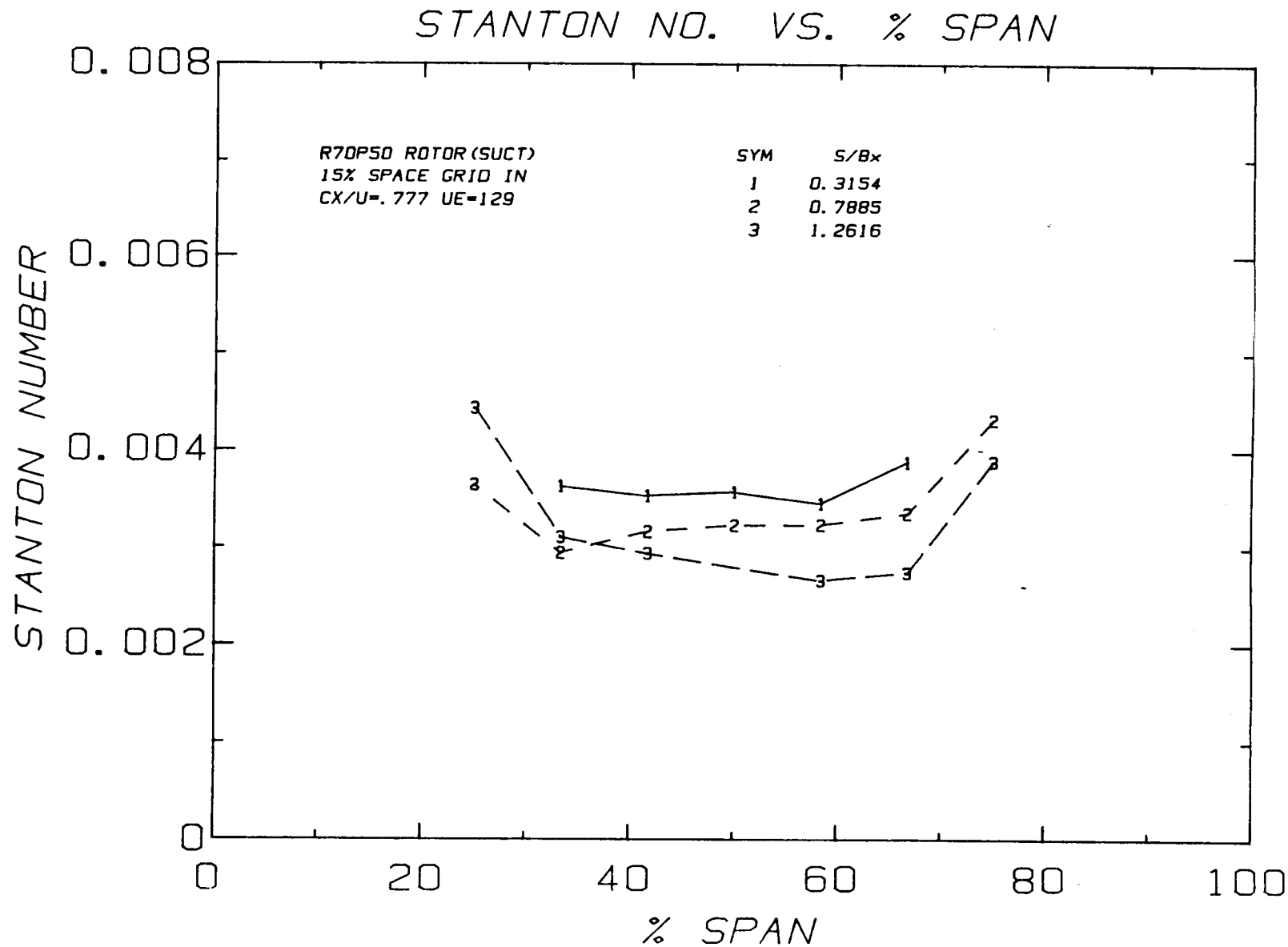
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003697	1373.3	70.9	21.6
6	4.00	66.7	0.002639	980.4	81.2	27.3
7	3.50	58.3	0.002626	975.3	81.4	27.4
9	2.50	41.7	0.002841	1055.2	78.7	25.9
10	2.00	33.3	0.003032	1126.4	76.6	24.8
11	1.50	25.0	0.004248	1577.8	67.6	19.8


STANTON NO. VS. S/Bx
R70P15 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.780 UE=129
R70P50 ROTOR (SUCT)
15% SPACE GRID IN
CX/U=.777 UE=129
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R70P15 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.780 UE=129
R70P50 ROTOR (SUCT)
15% SPACE GRID IN
CX/U=.777 UE=129
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P15 ROTOR(PRESSURE)
15% SPACE GRID IN
CX/U=.780 UE=129
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P50 ROTOR(SUCT)
15% SPACE GRID IN
CX/U=.777 UE=129
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.780 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 15

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	30.4	129.0	0.0800	0.01405	0.2740	6.341
SI	-0.9	39.3	1.2811	0.02430	3.1096	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.003978	1333.9	58.7	14.8
42	0.30	0.047	0.004707	1578.3	54.4	12.4
59	-0.75	-0.118	0.002348	787.2	77.5	25.3
60	-1.00	-0.158	0.002296	769.8	78.6	25.9
61	-1.25	-0.197	0.002033	681.5	84.5	29.2
62	-1.50	-0.237	0.001917	642.6	87.7	30.9
63	-1.75	-0.276	0.001837	616.1	90.1	32.3
67	-2.25	-0.355	0.001669	559.4	95.8	35.4
71	-2.75	-0.434	0.001819	609.8	90.7	32.6
72	-3.25	-0.513	0.001762	590.7	92.5	33.6
81	-4.75	-0.749	0.002147	720.0	81.8	27.7
82	-5.25	-0.828	0.002178	730.3	81.2	27.3
83	-5.75	-0.907	0.002560	858.2	73.9	23.3
87	-6.25	-0.986	0.002719	911.5	71.6	22.0

ROTOR(PRESSURE) CX/U=.780 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 15

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	30.4	129.0	0.0800	0.01405	0.2740	6.341
SI	-0.9	39.3	1.2811	0.02430	3.1096	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001660	556.4	96.1	35.6
67	3.00	50.0	0.001669	559.4	95.8	35.4
68	2.50	41.7	0.001824	611.5	90.5	32.5
69	2.00	33.3	0.001847	619.3	89.8	32.1
70	1.50	25.0	0.001976	662.6	86.1	30.0

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001781	597.1	91.8	33.2
75	4.00	66.7	0.001922	644.3	87.5	30.9
76	3.50	58.3	0.001880	630.4	88.7	31.5
78	2.50	41.7	0.001912	641.2	87.8	31.0
80	1.50	25.0	0.001919	643.3	87.6	30.9

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002150	720.7	81.8	27.7
85	4.00	66.7	0.002790	935.6	70.5	21.4
86	3.50	58.3	0.002736	917.5	71.3	21.8
87	3.00	50.0	0.002719	911.5	71.6	22.0
88	2.50	41.7	0.002364	792.5	77.4	25.2
89	2.00	33.3	0.002574	863.0	73.8	23.2
90	1.50	25.0	0.002618	877.7	73.1	22.8

ROTOR(SUCTION) CX/U=.777 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 50

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	41.4	128.8	0.0784	0.01434	0.2620	6.341
SI	5.2	39.3	1.2552	0.02480	2.9734	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002535	814.6	83.3	28.5
2	9.50	1.498	0.002702	868.3	81.0	27.2
3	9.00	1.419	0.002459	790.3	84.8	29.3
4	8.50	1.340	0.002516	808.6	84.1	28.9
13	7.00	1.104	0.002560	822.6	83.5	28.6
15	6.00	0.946	0.002898	931.4	78.7	26.0
20	5.00	0.789	0.003225	1036.5	75.1	23.9
27	3.00	0.473	0.003290	1057.3	74.4	23.5
28	2.50	0.394	0.003322	1067.5	74.1	23.4
32	2.00	0.315	0.003571	1147.5	71.8	22.1
38	0.50	0.079	0.004369	1404.1	66.3	19.1
40	0.40	0.063	0.004808	1545.2	64.1	17.8
41	0.35	0.055	0.004940	1587.4	63.5	17.5
44	0.20	0.032	0.004970	1597.1	63.4	17.4
49	-0.05	-0.008	0.004783	1537.2	64.2	17.9
50	-0.10	-0.016	0.004543	1460.0	65.4	18.6
52	-0.20	-0.032	0.004356	1399.8	66.4	19.1
53	-0.25	-0.039	0.004261	1369.2	67.0	19.4
54	-0.30	-0.047	0.003737	1201.0	70.4	21.3
56	-0.40	-0.063	0.002921	938.6	78.2	25.7
58	-0.50	-0.079	0.002660	854.7	81.7	27.6

ROTOR(SUCTION) CX/U=.777 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 50

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	41.4	128.8	0.0784	0.01434	0.2620	6.341
SI	5.2	39.3	1.2552	0.02480	2.9734	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

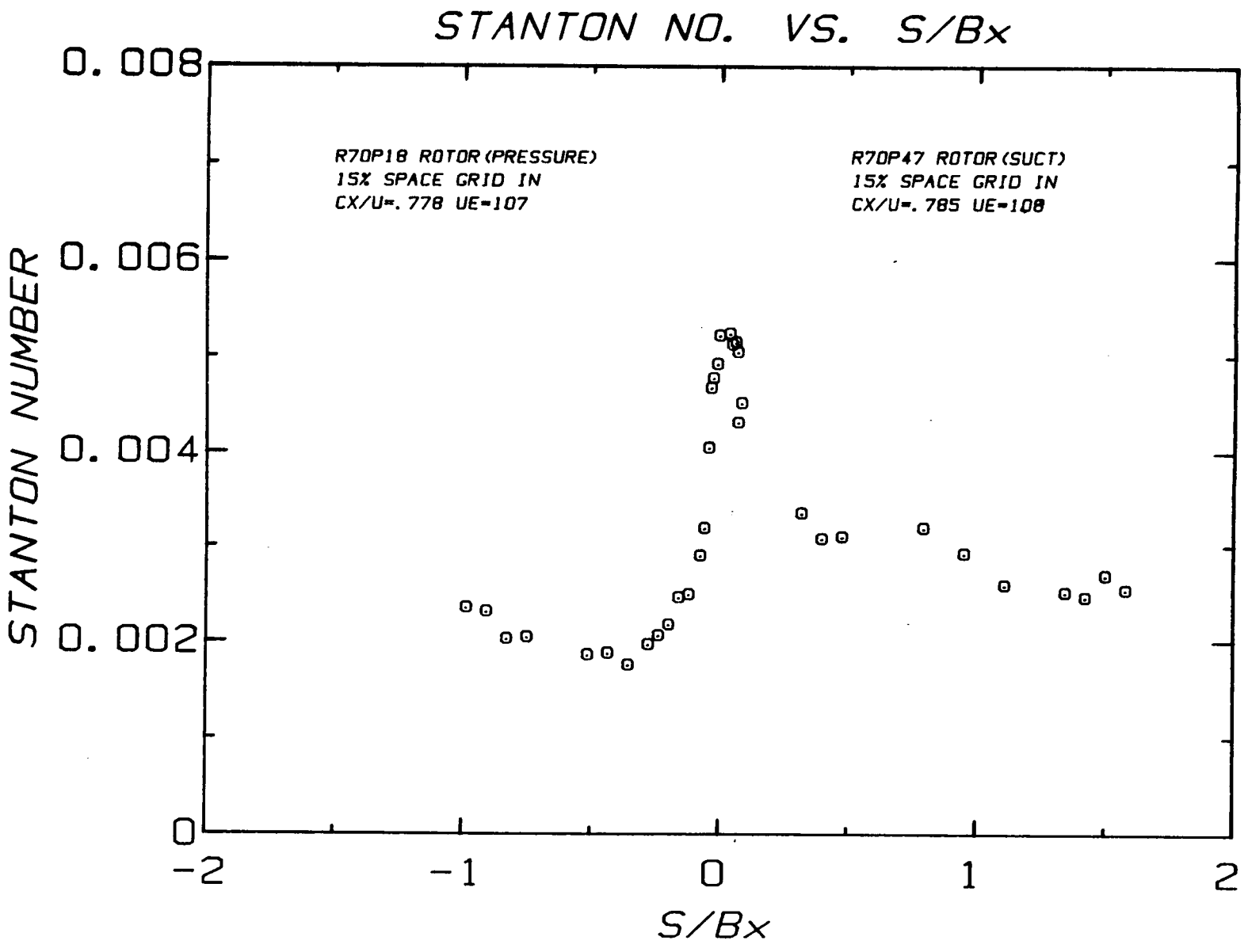
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.003881	1247.1	69.4	20.8
31	3.50	58.3	0.003452	1109.5	72.8	22.7
32	3.00	50.0	0.003571	1147.5	71.8	22.1
33	2.50	41.7	0.003529	1134.1	72.2	22.3
34	2.00	33.3	0.003629	1166.0	71.3	21.9

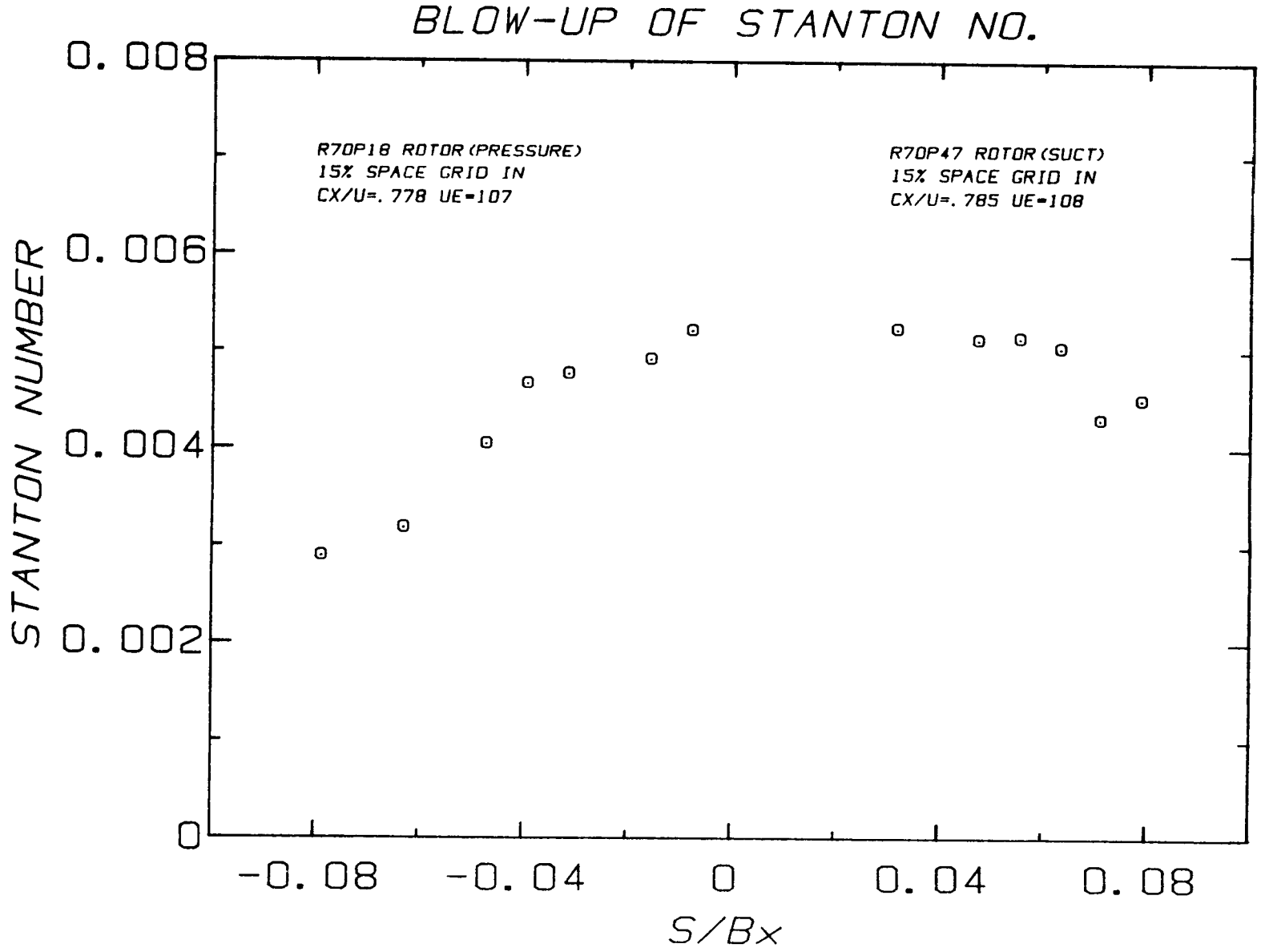
S/BX = 0.78852

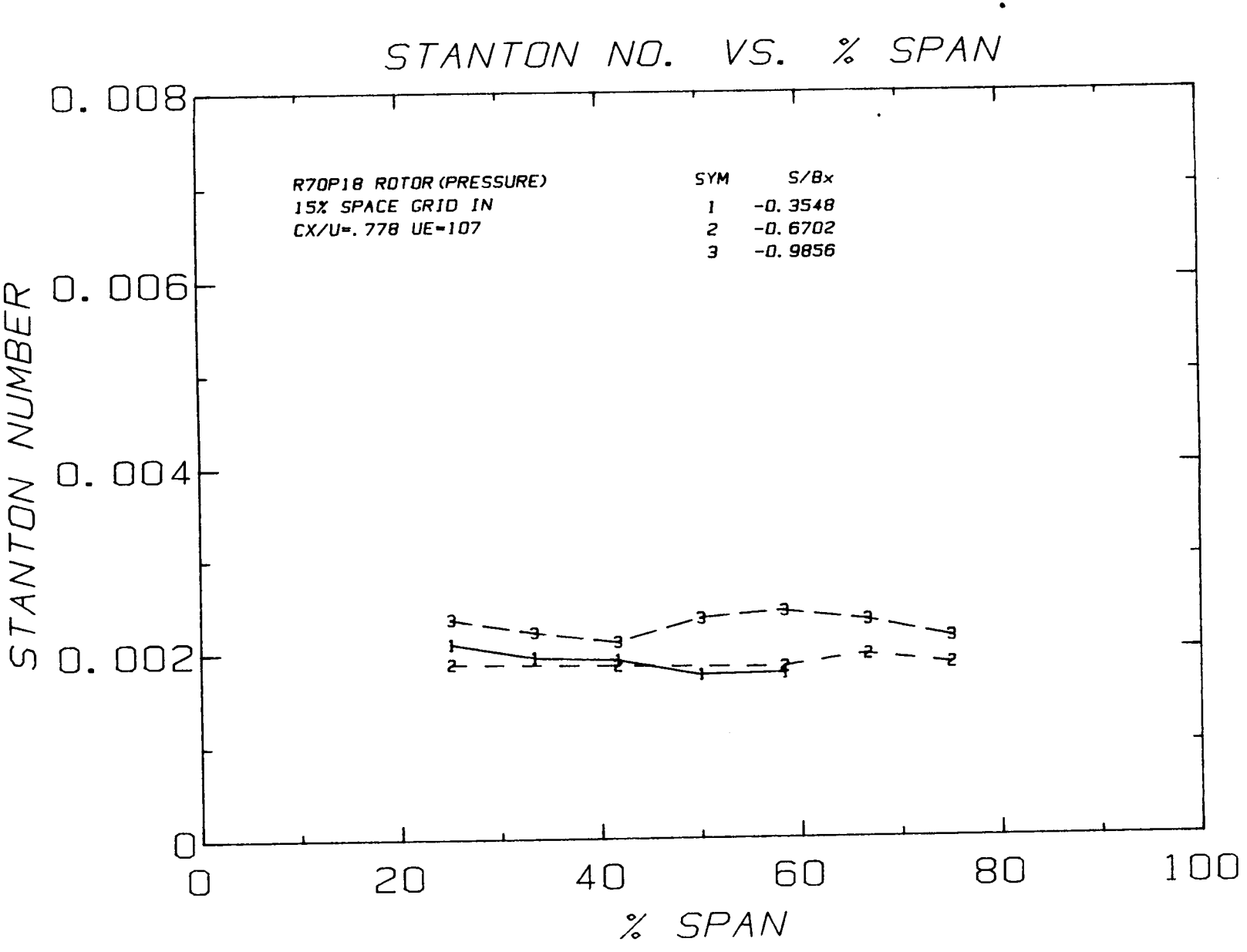
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.004320	1388.2	66.7	19.3
18	4.00	66.7	0.003351	1076.7	73.8	23.2
19	3.50	58.3	0.003230	1038.1	75.0	23.9
20	3.00	50.0	0.003225	1036.5	75.1	23.9
21	2.50	41.7	0.003159	1015.3	75.7	24.3
22	2.00	33.3	0.002940	944.8	78.2	25.7
23	1.50	25.0	0.003643	1170.6	71.3	21.8

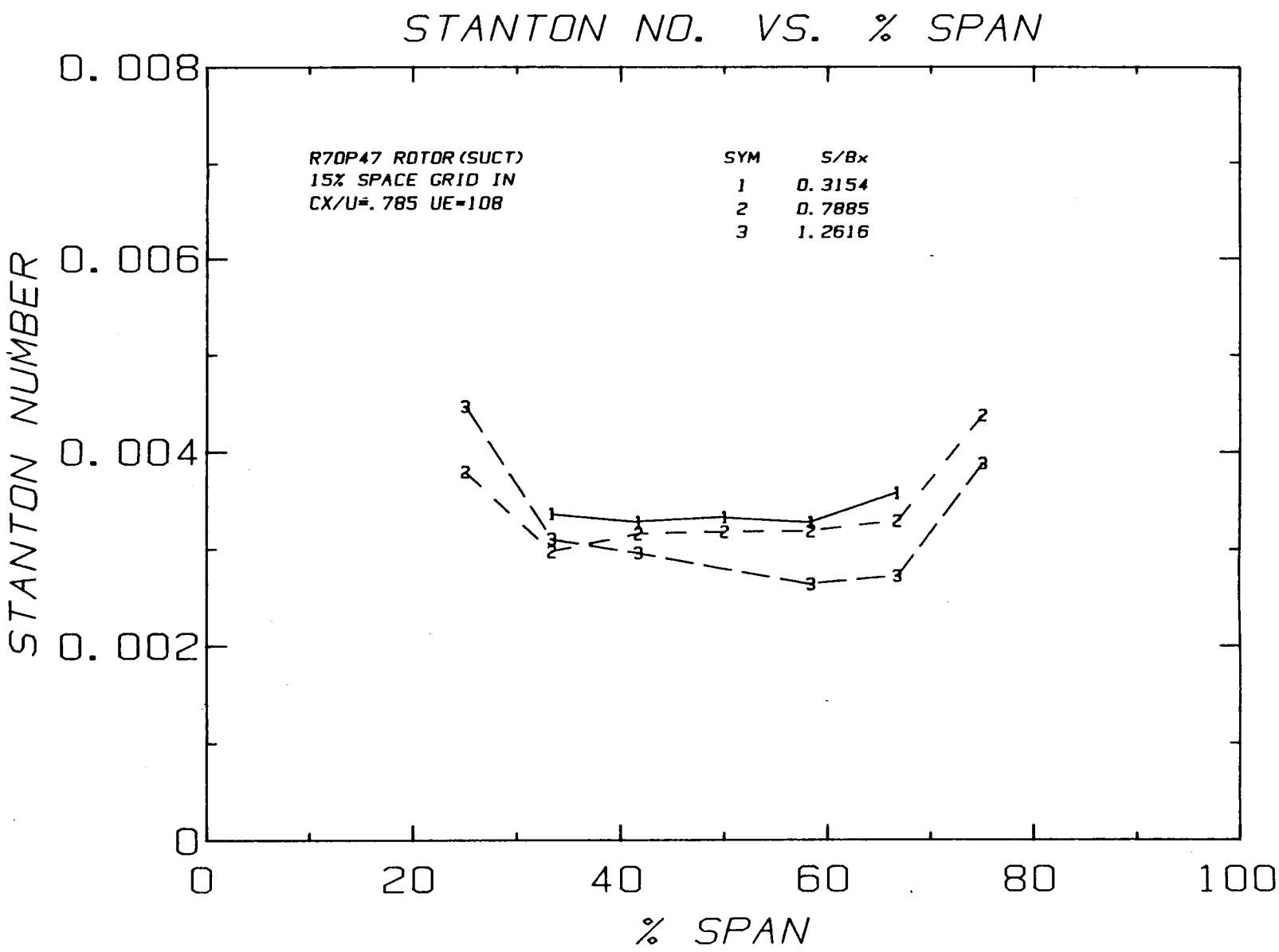
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003891	1250.5	69.5	20.8
6	4.00	66.7	0.002741	880.7	80.8	27.1
7	3.50	58.3	0.002660	854.9	81.9	27.7
9	2.50	41.7	0.002936	943.5	78.3	25.7
10	2.00	33.3	0.003104	997.5	76.3	24.6
11	1.50	25.0	0.004436	1425.7	66.1	19.0


STANTON NO. VS. S/Bx
R70P18 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.778 UE=107
R70P47 ROTOR (SUCT)
15% SPACE GRID IN
CX/U=.785 UE=108
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R7OP18 ROTOR(PRESSURE)
15% SPACE GRID IN
CX/U=.778 UE=107
R7OP47 ROTOR(SUCT)
15% SPACE GRID IN
CX/U=.785 UE=108
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P18 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.778 UE=107
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P47 ROTOR(SUCT)
15% SPACE GRID IN
CX/U=.785 UE=108
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.778 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 18

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	33.3	107.2	0.0800	0.01412	0.2660	6.341
SI	0.7	32.7	1.2822	0.02442	3.0188	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.004299	1192.8	63.8	17.7
42	0.30	0.047	0.005117	1419.7	59.0	15.0
59	-0.75	-0.118	0.002482	688.5	85.0	29.5
60	-1.00	-0.158	0.002450	679.7	85.7	29.8
61	-1.25	-0.197	0.002167	601.2	92.2	33.4
62	-1.50	-0.237	0.002053	569.7	95.3	35.2
63	-1.75	-0.276	0.001958	543.2	98.2	36.8
67	-2.25	-0.355	0.001745	484.2	105.6	40.9
71	-2.75	-0.434	0.001871	519.0	101.0	38.4
72	-3.25	-0.513	0.001852	513.8	101.6	38.7
81	-4.75	-0.749	0.002036	564.9	95.7	35.4
82	-5.25	-0.828	0.002017	559.6	96.2	35.7
83	-5.75	-0.907	0.002306	639.8	88.8	31.6
87	-6.25	-0.986	0.002347	651.2	87.9	31.1

ROTOR(PRESSURE) CX/U=.778 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 18

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	33.3	107.2	0.0800	0.01412	0.2660	6.341
SI	0.7	32.7	1.2822	0.02442	3.0188	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001758	487.7	105.1	40.6
67	3.00	50.0	0.001745	484.2	105.6	40.9
68	2.50	41.7	0.001909	529.7	99.8	37.6
69	2.00	33.3	0.001939	538.1	98.8	37.1
70	1.50	25.0	0.002089	579.6	94.4	34.6

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001853	514.2	101.5	38.6
75	4.00	66.7	0.001953	541.8	98.2	36.8
76	3.50	58.3	0.001827	507.0	102.4	39.1
78	2.50	41.7	0.001850	513.3	101.6	38.7
80	1.50	25.0	0.001874	519.8	100.8	38.2

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002140	593.8	92.8	33.8
85	4.00	66.7	0.002324	644.8	88.4	31.3
86	3.50	58.3	0.002421	671.7	86.4	30.2
87	3.00	50.0	0.002347	651.2	87.9	31.1
88	2.50	41.7	0.002098	582.0	93.9	34.4
89	2.00	33.3	0.002208	612.6	91.1	32.8
90	1.50	25.0	0.002354	653.1	87.8	31.0

ROTOR(SUCTION) CX/U=.785 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 47

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	37.9	108.3	0.0794	0.01425	0.2330	6.341
SI	3.3	33.0	1.2721	0.02465	2.6443	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002528	696.9	81.6	27.5
2	9.50	1.498	0.002680	738.8	79.4	26.3
3	9.00	1.419	0.002450	675.3	83.2	28.4
4	8.50	1.340	0.002502	689.6	82.5	28.1
13	7.00	1.104	0.002579	710.9	81.3	27.4
15	6.00	0.946	0.002907	801.4	76.7	24.8
20	5.00	0.789	0.003176	875.5	73.5	23.0
27	3.00	0.473	0.003081	849.2	74.5	23.6
28	2.50	0.394	0.003059	843.3	74.7	23.7
32	2.00	0.315	0.003326	916.9	71.8	22.1
38	0.50	0.079	0.004499	1240.1	63.2	17.3
40	0.40	0.063	0.005031	1386.7	60.6	15.9
41	0.35	0.055	0.005132	1414.6	60.1	15.6
44	0.20	0.032	0.005222	1439.4	59.8	15.4
49	-0.05	-0.008	0.005200	1433.4	59.8	15.5
50	-0.10	-0.016	0.004904	1351.8	61.1	16.2
52	-0.20	-0.032	0.004755	1310.7	61.8	16.6
53	-0.25	-0.039	0.004652	1282.4	62.4	16.9
54	-0.30	-0.047	0.004033	1111.6	66.0	18.9
56	-0.40	-0.063	0.003168	873.1	73.3	23.0
58	-0.50	-0.079	0.002880	793.9	76.7	24.8

ROTOR(SUCTION) CX/U=.785 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 47

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	37.9	108.3	0.0794	0.01425	0.2330	6.341
SI	3.3	33.0	1.2721	0.02465	2.6443	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

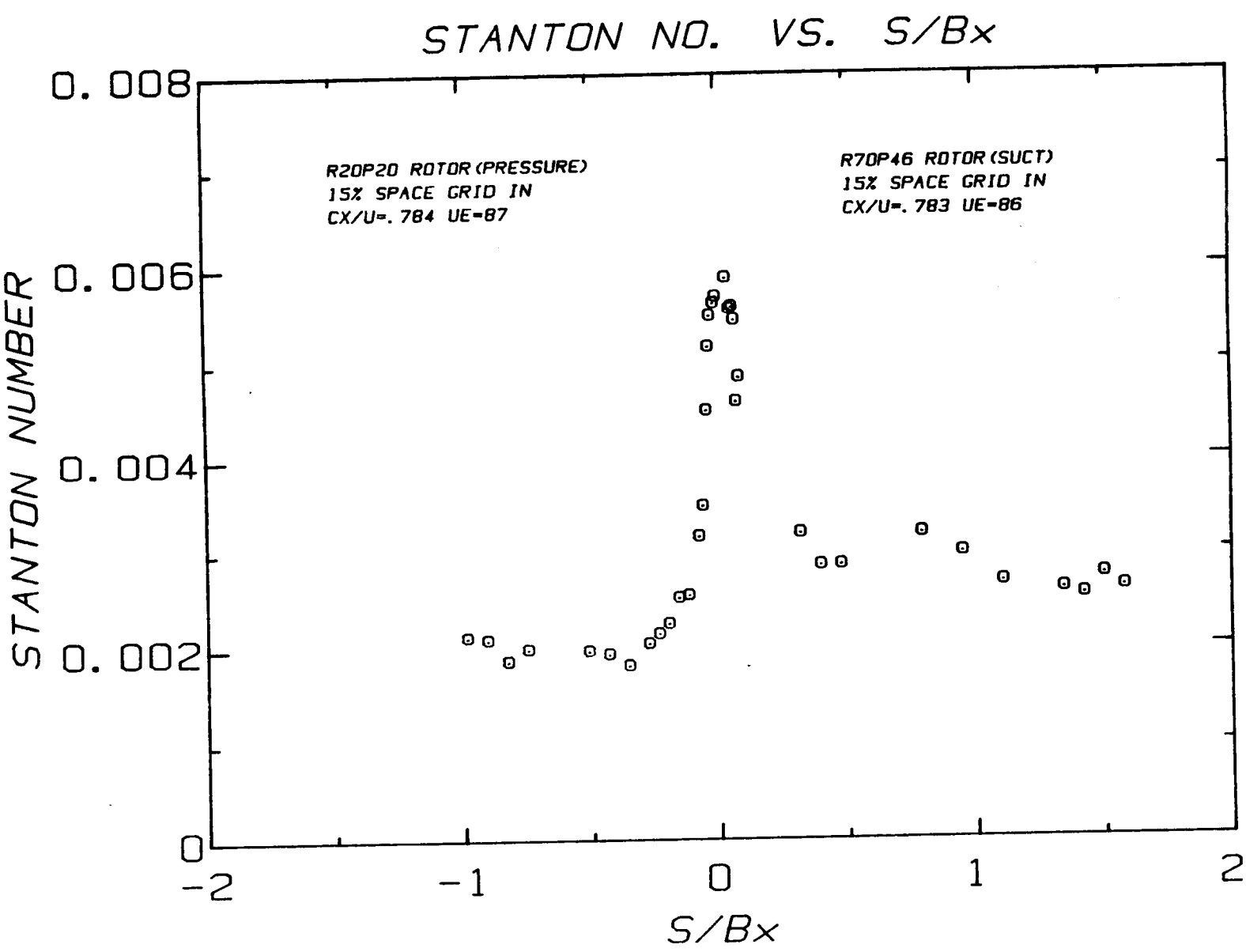
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.003576	985.7	69.5	20.8
31	3.50	58.3	0.003275	902.7	72.3	22.4
32	3.00	50.0	0.003326	916.9	71.8	22.1
33	2.50	41.7	0.003279	903.9	72.3	22.4
34	2.00	33.3	0.003363	926.9	71.5	21.9

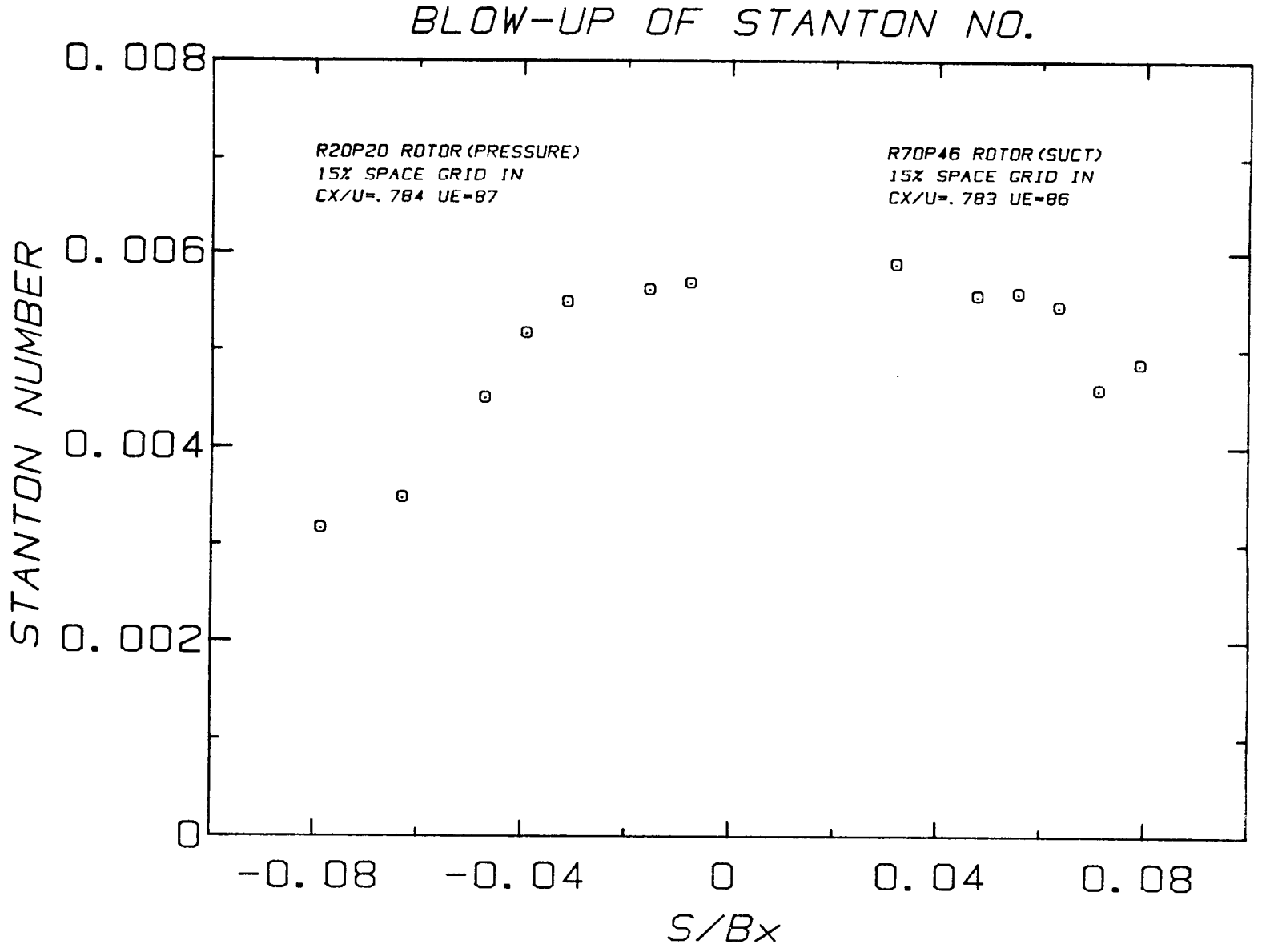
S/BX = 0.78852

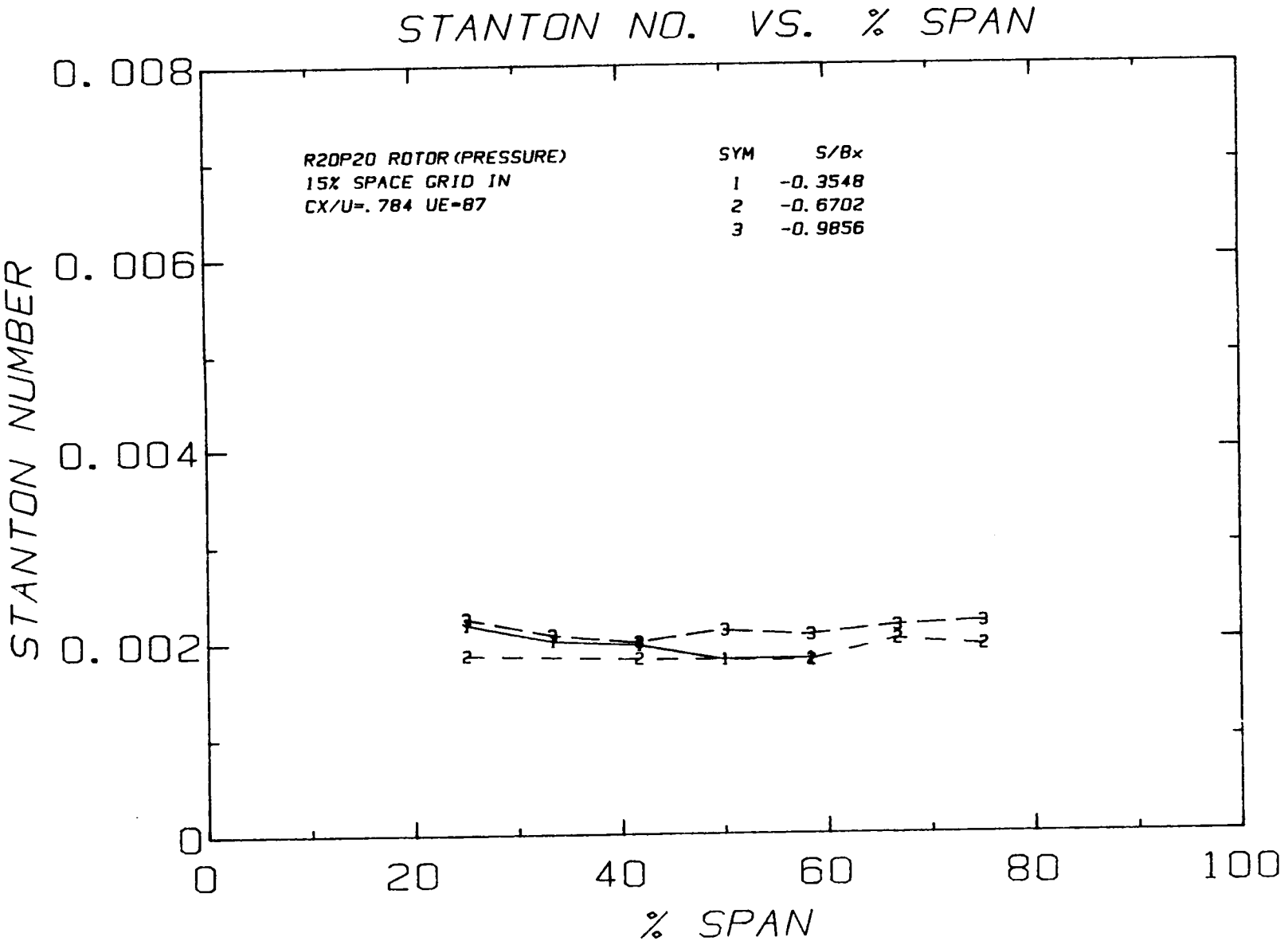
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.004377	1206.5	63.9	17.7
18	4.00	66.7	0.003287	906.0	72.3	22.4
19	3.50	58.3	0.003182	877.1	73.4	23.0
20	3.00	50.0	0.003176	875.5	73.5	23.0
21	2.50	41.7	0.003152	869.0	73.7	23.2
22	2.00	33.3	0.002971	818.9	75.8	24.3
23	1.50	25.0	0.003796	1046.3	67.8	19.9

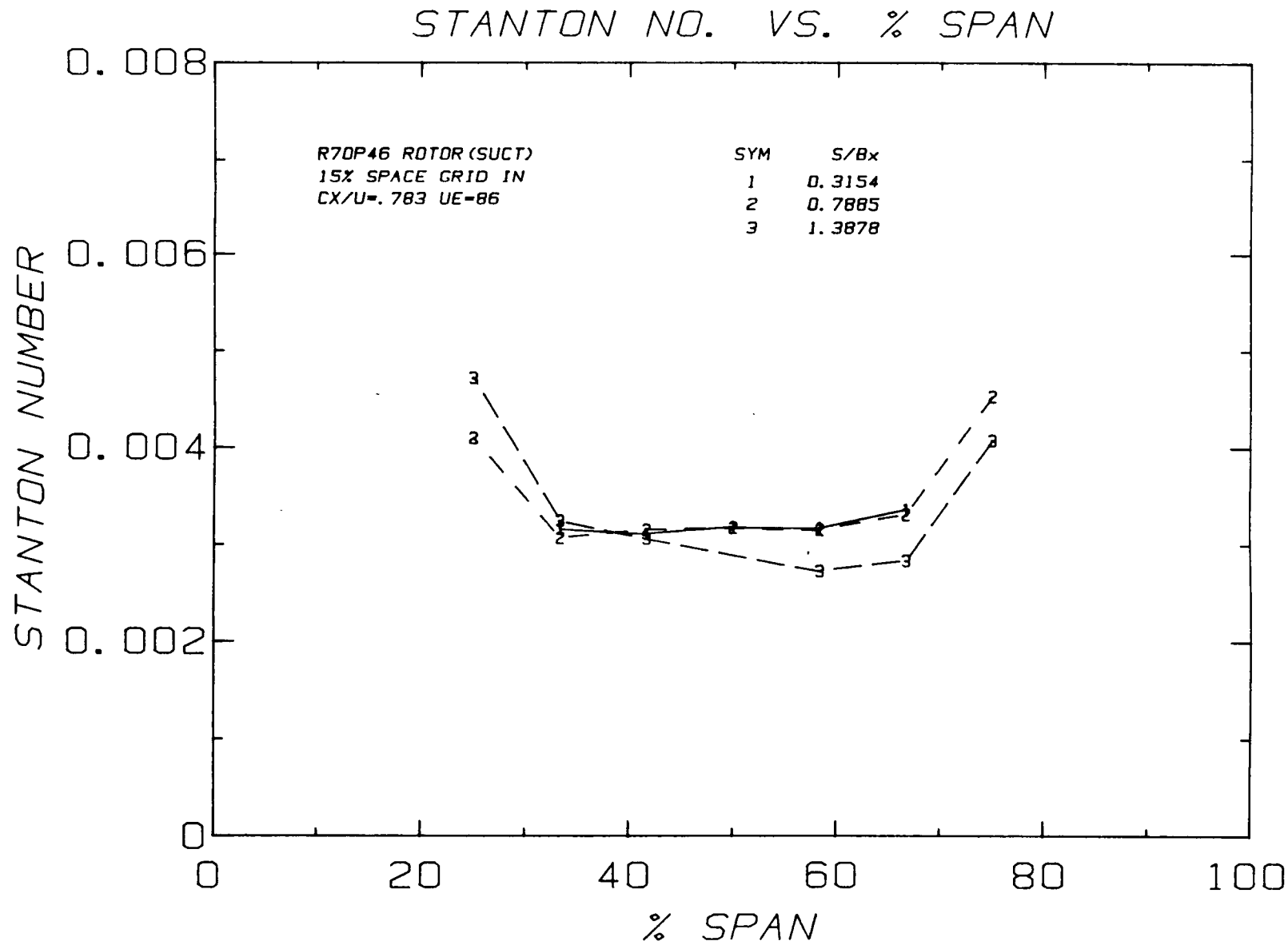
S/BX = 1.26163

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.003882	1070.0	67.3	19.6
6	4.00	66.7	0.002718	749.2	79.2	26.2
7	3.50	58.3	0.002635	726.2	80.4	26.9
9	2.50	41.7	0.002960	816.0	76.0	24.4
10	2.00	33.3	0.003102	855.2	74.3	23.5
11	1.50	25.0	0.004470	1232.0	63.5	17.5


STANTON NO. VS. S/Bx
R20P20 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=. 784 UE=87
R70P46 ROTOR (SUCT)
15% SPACE GRID IN
CX/U=. 783 UE=86
STANTON NUMBER
0. 008
0. 006
0. 004
0. 002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
R20P20 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.784 UE=87
R70P46 ROTOR (SUCT)
15% SPACE GRID IN
CX/U=.783 UE=86
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R20P20 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.784 UE=87
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P46 ROTOR (SUCT)
15% SPACE GRID IN
CX/U=.783 UE=86
SYM S/Bx
1 0.3154
2 0.7885
3 1.3878
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.784 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 20 POINT: 20

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	36.4	86.6	0.0800	0.01420	0.2290	6.341
SI	2.5	26.4	1.2810	0.02456	2.5989	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.004589	1021.5	67.1	19.5
42	0.30	0.047	0.005552	1236.0	61.9	16.6
59	-0.75	-0.118	0.002544	566.3	90.2	32.3
60	-1.00	-0.158	0.002518	560.5	90.8	32.6
61	-1.25	-0.197	0.002245	499.8	96.9	36.1
62	-1.50	-0.237	0.002140	476.5	99.8	37.6
63	-1.75	-0.276	0.002039	454.0	102.7	39.3
67	-2.25	-0.355	0.001810	403.0	110.4	43.5
71	-2.75	-0.434	0.001930	429.6	106.2	41.2
72	-3.25	-0.513	0.001964	437.3	105.0	40.5
81	-4.75	-0.749	0.001986	442.1	104.1	40.0
82	-5.25	-0.828	0.001860	414.2	108.1	42.3
83	-5.75	-0.907	0.002088	464.8	100.9	38.3
87	-6.25	-0.986	0.002114	470.7	100.1	37.9

ROTOR(PRESSURE) CX/U=.784 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 20 POINT: 20

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	36.4	86.6	0.0800	0.01420	0.2290	6.341
SI	2.5	26.4	1.2810	0.02456	2.5989	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.001816	404.2	110.2	43.4
67	3.00	50.0	0.001810	403.0	110.4	43.5
68	2.50	41.7	0.001969	438.3	104.9	40.5
69	2.00	33.3	0.002011	447.6	103.6	39.8
70	1.50	25.0	0.002185	486.4	98.6	37.0

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.001952	434.5	105.2	40.7
75	4.00	66.7	0.002016	448.8	103.2	39.6
76	3.50	58.3	0.001801	400.9	110.4	43.6
78	2.50	41.7	0.001824	406.1	109.6	43.1
80	1.50	25.0	0.001865	415.1	108.1	42.3

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002189	487.3	98.2	36.8
85	4.00	66.7	0.002150	478.5	99.2	37.3
86	3.50	58.3	0.002062	459.1	101.6	38.7
87	3.00	50.0	0.002114	470.7	100.1	37.9
88	2.50	41.7	0.001996	444.2	103.5	39.7
89	2.00	33.3	0.002074	461.6	101.3	38.5
90	1.50	25.0	0.002244	499.6	96.8	36.0

ROTOR(SUCTION) CX/U=.783 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 46

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	37.6	86.4	0.0799	0.01424	0.1900	6.341
SI	3.1	26.3	1.2792	0.02463	2.1563	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002596	574.1	80.5	26.9
2	9.50	1.498	0.002731	604.0	78.7	25.9
3	9.00	1.419	0.002519	557.1	82.0	27.8
4	8.50	1.340	0.002582	571.0	81.3	27.4
13	7.00	1.104	0.002664	589.2	80.1	26.7
15	6.00	0.946	0.002975	657.9	76.0	24.4
20	5.00	0.789	0.003177	702.6	73.6	23.1
27	3.00	0.473	0.002851	630.5	77.5	25.3
28	2.50	0.394	0.002846	629.5	77.5	25.3
32	2.00	0.315	0.003183	704.0	73.4	23.0
38	0.50	0.079	0.004845	1071.7	61.5	16.4
40	0.40	0.063	0.005437	1202.6	59.0	15.0
41	0.35	0.055	0.005570	1231.9	58.5	14.7
44	0.20	0.032	0.005875	1299.4	57.4	14.1
49	-0.05	-0.008	0.005673	1254.7	58.1	14.5
50	-0.10	-0.016	0.005605	1239.6	58.3	14.6
52	-0.20	-0.032	0.005476	1211.1	58.8	14.9
53	-0.25	-0.039	0.005155	1140.2	60.1	15.6
54	-0.30	-0.047	0.004492	993.6	63.3	17.4
56	-0.40	-0.063	0.003466	766.6	70.5	21.4
58	-0.50	-0.079	0.003152	697.1	73.6	23.1

ROTOR(SUCTION) CX/U=.783 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 46

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	37.6	86.4	0.0799	0.01424	0.1900	6.341
SI	3.1	26.3	1.2792	0.02463	2.1563	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

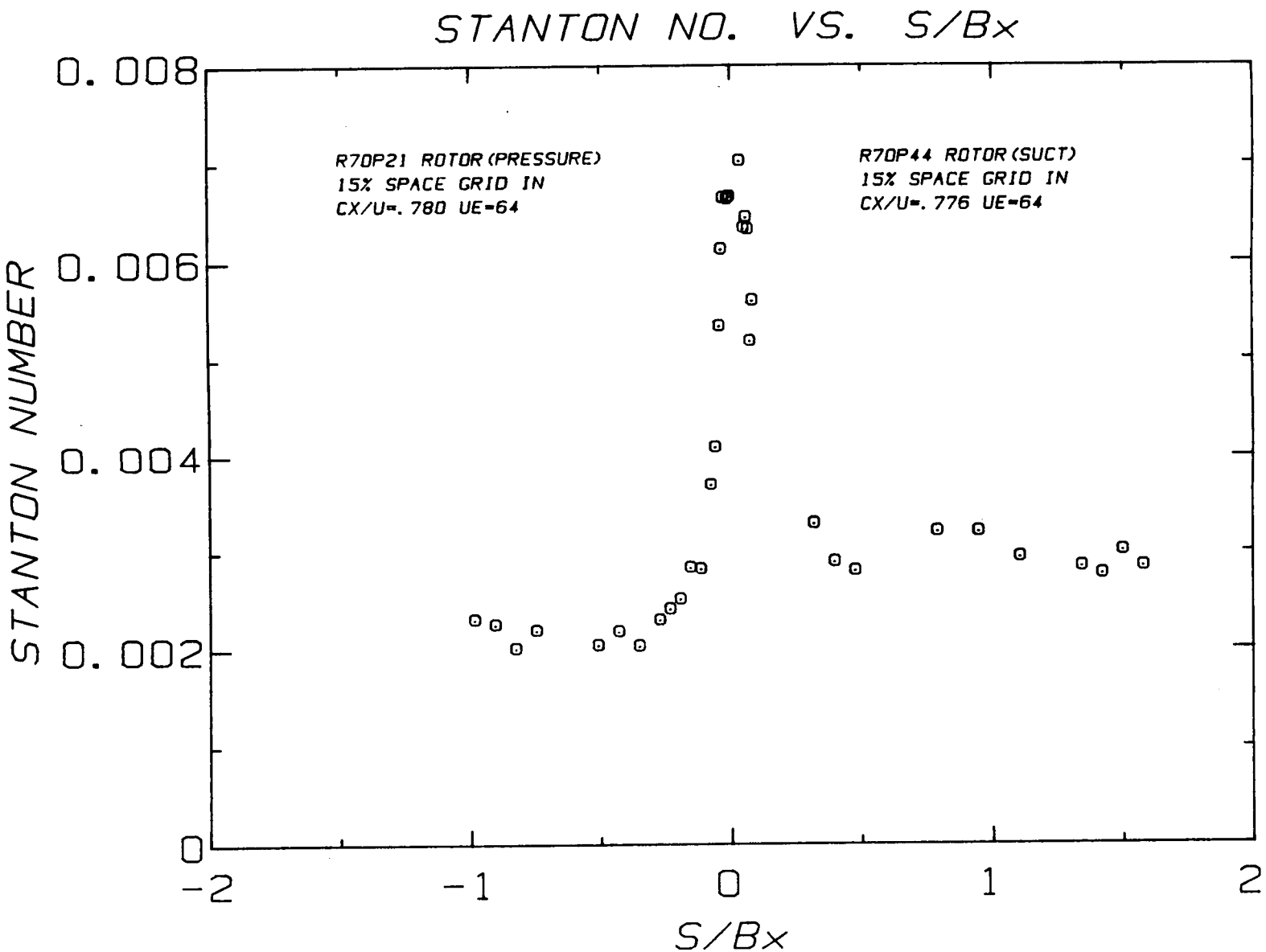
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
30	4.00	66.7	0.003362	743.6	71.6	22.0
31	3.50	58.3	0.003172	701.5	73.5	23.1
32	3.00	50.0	0.003183	704.0	73.4	23.0
33	2.50	41.7	0.003111	688.0	74.2	23.4
34	2.00	33.3	0.003162	699.4	73.6	23.1

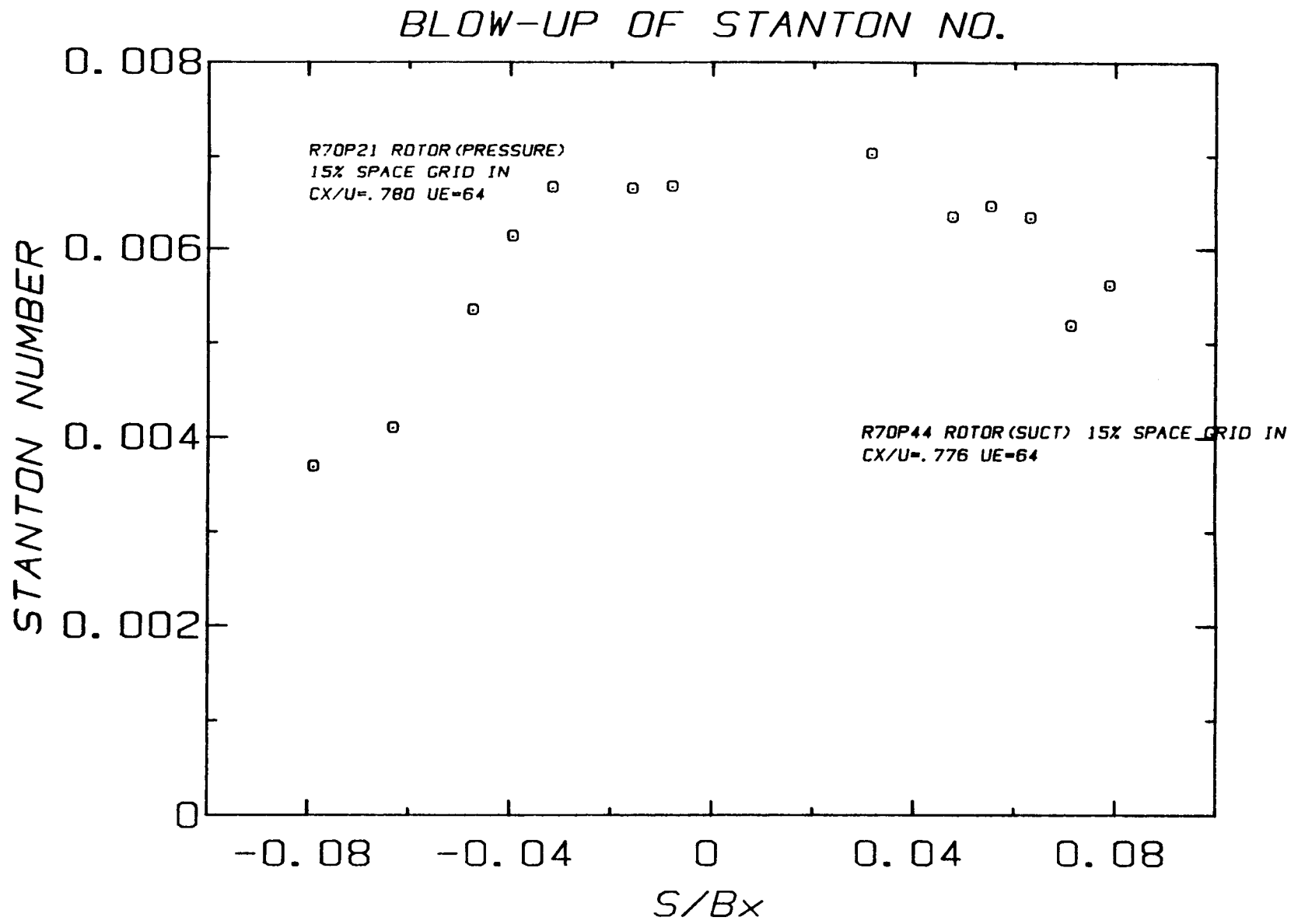
S/BX = 0.78852

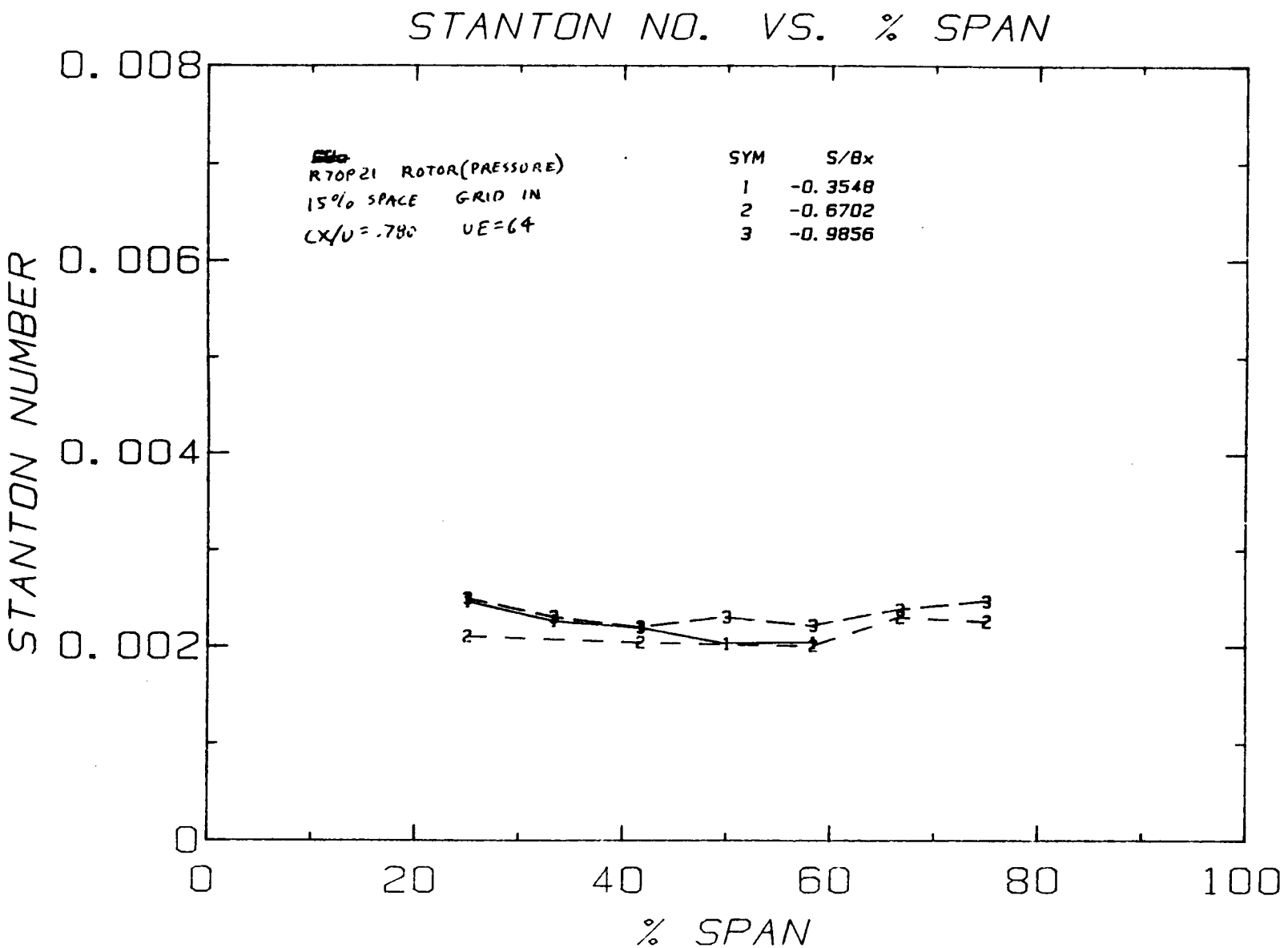
TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
17	4.50	75.0	0.004534	1002.8	63.2	17.3
18	4.00	66.7	0.003315	733.2	72.2	22.3
19	3.50	58.3	0.003155	697.8	73.8	23.2
20	3.00	50.0	0.003177	702.6	73.6	23.1
21	2.50	41.7	0.003153	697.2	73.9	23.3
22	2.00	33.3	0.003066	678.1	74.8	23.8
23	1.50	25.0	0.004099	906.7	65.8	18.8

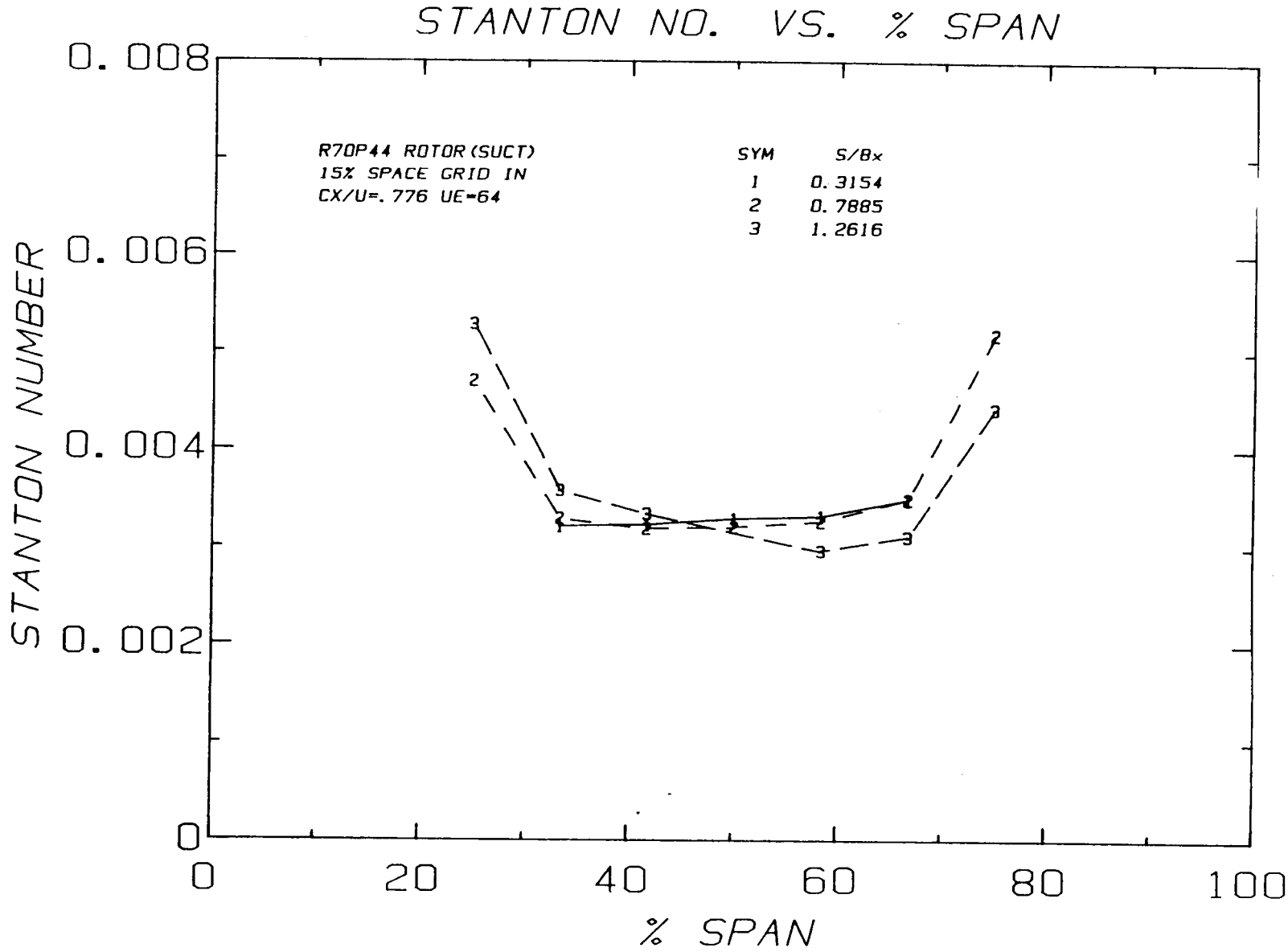
S/BX = 1.38779

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
5	4.50	75.0	0.004078	902.0	66.0	18.9
6	4.00	66.7	0.002836	627.2	77.7	25.4
7	3.50	58.3	0.002730	603.7	79.1	26.2
9	2.50	41.7	0.003061	677.0	74.9	23.8
10	2.00	33.3	0.003247	718.1	72.9	22.7
11	1.50	25.0	0.004719	1043.8	62.3	16.9


STANTON NO. VS. S/Bx
R7OP21 ROTOR (PRESSURE)
15% SPACE GRID IN
CX/U=.780 UE=64
R7OP44 ROTOR (SUCT)
15% SPACE GRID IN
CX/U=.776 UE=64
STANTON NUMBER
0.008
0.006
0.004
0.002
0
-2
-1
0
1
2
S/Bx


BLOW-UP OF STANTON NO.
STANTON NUMBER
0.008
0.006
0.004
0.002
0
R7OP21 ROTOR(PRESSURE)
15% SPACE GRID IN
CX/U=.780 UE=64
R7OP44 ROTOR(SUCT) 15% SPACE GRID IN
CX/U=.776 UE=64
-0.08
-0.04
0
0.04
0.08
S/Bx


STANTON NO. VS. % SPAN
R70P21 ROTOR(PRESSURE)
15% SPACE GRID IN
CX/U = .780 UE=64
SYM S/Bx
1 -0.3548
2 -0.6702
3 -0.9856
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN


STANTON NO. VS. % SPAN
R70P44 ROTOR (SUCT)
15% SPACE GRID IN
CX/U=.776 UE=64
SYM S/Bx
1 0.3154
2 0.7885
3 1.2616
STANTON NUMBER
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
% SPAN

ROTOR(PRESSURE) CX/U=.780 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 21

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	37.9	64.3	0.0801	0.01425	0.1700	6.341
SI	3.3	19.6	1.2824	0.02465	1.9293	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
39	0.45	0.071	0.005181	854.4	65.4	18.6
42	0.30	0.047	0.006337	1045.1	60.6	15.9
59	-0.75	-0.118	0.002823	465.5	86.5	30.3
60	-1.00	-0.158	0.002838	467.9	86.3	30.2
61	-1.25	-0.197	0.002509	413.8	92.1	33.4
62	-1.50	-0.237	0.002410	397.5	94.2	34.6
63	-1.75	-0.276	0.002297	378.8	96.7	36.0
67	-2.25	-0.355	0.002029	334.7	103.7	39.8
71	-2.75	-0.434	0.002179	359.4	99.6	37.6
72	-3.25	-0.513	0.002037	335.9	103.4	39.7
81	-4.75	-0.749	0.002191	361.4	99.1	37.3
82	-5.25	-0.828	0.002006	330.8	103.9	40.0
83	-5.75	-0.907	0.002252	371.3	97.5	36.4
87	-6.25	-0.986	0.002306	380.3	96.2	35.7

ROTOR(PRESSURE) CX/U=.780 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 21

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	37.9	64.3	0.0801	0.01425	0.1700	6.341
SI	3.3	19.6	1.2824	0.02465	1.9293	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = -0.35483

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
66	3.50	58.3	0.002041	336.6	103.3	39.6
67	3.00	50.0	0.002029	334.7	103.7	39.8
68	2.50	41.7	0.002199	362.6	99.1	37.3
69	2.00	33.3	0.002266	373.7	97.5	36.4
70	1.50	25.0	0.002462	406.0	93.2	34.0

S/BX = -0.67024

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
74	4.50	75.0	0.002260	372.6	97.5	36.4
75	4.00	66.7	0.002304	380.0	96.4	35.8
76	3.50	58.3	0.002007	331.0	104.1	40.0
78	2.50	41.7	0.002044	337.0	103.0	39.5
80	1.50	25.0	0.002106	347.3	101.3	38.5

S/BX = -0.98565

TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
84	4.50	75.0	0.002467	406.9	92.9	33.8
85	4.00	66.7	0.002381	392.6	94.6	34.8
86	3.50	58.3	0.002220	366.1	98.2	36.8
87	3.00	50.0	0.002306	380.3	96.2	35.7
88	2.50	41.7	0.002200	362.9	98.7	37.0
89	2.00	33.3	0.002307	380.4	96.2	35.7
90	1.50	25.0	0.002493	411.0	92.4	33.5

ROTOR(SUCTION) CX/U=.776 GRID IN 15% SPACING

MIDSPAN HEAT TRANSFER

RUN: 70 POINT: 44

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	36.8	64.1	0.0803	0.01422	0.1670	6.341
SI	2.6	19.5	1.2867	0.02459	1.8953	16.106

FOR UNITS SEE NOMENCLATURE

TC#	S (IN.)	S/BX	ST	NU	TWALL (F)	TWALL (C)
1	10.00	1.577	0.002836	468.7	82.6	28.1
2	9.50	1.498	0.002999	495.7	80.5	27.0
3	9.00	1.419	0.002759	456.0	84.2	29.0
4	8.50	1.340	0.002836	468.8	83.3	28.5
13	7.00	1.104	0.002935	485.1	82.0	27.8
15	6.00	0.946	0.003200	528.9	78.6	25.9
20	5.00	0.789	0.003202	529.3	78.5	25.8
27	3.00	0.473	0.002801	463.0	84.0	28.9
28	2.50	0.394	0.002895	478.6	82.5	28.1
32	2.00	0.315	0.003287	543.3	77.3	25.2
38	0.50	0.079	0.005602	925.9	61.2	16.2
40	0.40	0.063	0.006325	1045.5	58.5	14.7
41	0.35	0.055	0.006447	1065.6	58.1	14.5
44	0.20	0.032	0.007018	1160.1	56.4	13.6
49	-0.05	-0.008	0.006655	1100.0	57.5	14.1
50	-0.10	-0.016	0.006630	1095.9	57.5	14.2
52	-0.20	-0.032	0.006643	1098.0	57.5	14.2
53	-0.25	-0.039	0.006122	1011.9	59.2	15.1
54	-0.30	-0.047	0.005337	882.2	62.3	16.9
56	-0.40	-0.063	0.004089	676.0	69.7	20.9
58	-0.50	-0.079	0.003683	608.8	73.1	22.8

ROTOR(SUCTION) CX/U=.776 GRID IN 15% SPACING

SPANWISE HEAT TRANSFER RUN: 70 POINT: 44

SYSTEM OF UNITS	TT	U-EXIT	RHO-EXIT	K	Q-NOM	BX
ENGLISH	36.8	64.1	0.0803	0.01422	0.1670	6.341
SI	2.6	19.5	1.2867	0.02459	1.8953	16.106

FOR UNITS SEE NOMENCLATURE

S/BX = 0.31541

I	TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
1	30	4.00	66.7	0.003486	576.2	75.2	24.0
2	31	3.50	58.3	0.003312	547.5	77.1	25.0
3	32	3.00	50.0	0.003287	543.3	77.3	25.2
4	33	2.50	41.7	0.003224	532.9	78.1	25.6
5	34	2.00	33.3	0.003206	529.9	78.3	25.7

S/BX = 0.78852

I	TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
1	17	4.50	75.0	0.005182	856.5	63.2	17.3
2	18	4.00	66.7	0.003490	576.8	75.3	24.0
3	19	3.50	58.3	0.003262	539.1	77.8	25.4
4	20	3.00	50.0	0.003202	529.3	78.5	25.8
5	21	2.50	41.7	0.003186	526.6	78.7	25.9
6	22	2.00	33.3	0.003289	543.7	77.5	25.3
7	23	1.50	25.0	0.004697	776.4	65.8	18.8

S/BX = 1.26163

I	TC#	Y (IN.)	% SPAN	ST	NU	TWALL (F)	TWALL (C)
1	5	4.50	75.0	0.004418	730.3	67.7	19.8
2	6	4.00	66.7	0.003109	513.9	79.6	26.5
3	7	3.50	58.3	0.002962	489.7	81.6	27.5
4	9	2.50	41.7	0.003340	552.0	76.9	25.0
5	10	2.00	33.3	0.003578	591.4	74.4	23.6
6	11	1.50	25.0	0.005280	872.8	62.9	17.2

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
NASA CR-179467		

4. Title and Subtitle	5. Report Date
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	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
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9. Performing Organization Name and Address	11. Contract or Grant No.
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	13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address	Contractor Report
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	533-04-11

15. Supplementary Notes

Final report. Project Manager, Robert J. Simoneau, Internal Fluid Mechanics Division, NASA Lewis Research Center, Cleveland, Ohio 44135.

16. Abstract

A combined experimental and analytical program was conducted to examine the effects of inlet turbulence on airfoil heat transfer. The experimental portion of the study was conducted in a large-scale (approximately 5X engine), ambient temperature, rotating turbine model configured in both single stage and stage-and-a-half arrangements. Heat transfer measurements were obtained using low-conductivity airfoils with miniature thermocouples welded to a thin, electrically heated surface skin. Heat transfer data were acquired for various combinations of low or high inlet turbulence intensity, flow coefficient, first-stator/rotor axial spacing, Reynolds number and relative circumferential position of the first and second stators. Aerodynamic measurements obtained as part of the program include distributions of the mean and fluctuating velocities at the turbine inlet and, for each airfoil row, midspan airfoil surface pressures and circumferential distributions of the downstream steady state pressures and fluctuating velocities. Analytical results included airfoil heat transfer predictions produced using existing two-dimensional boundary layer computation schemes and an examination of solutions of the unsteady boundary layer equations. The results of this program are reported in four separate volumes. All four have a common report title and the following volume subtitles:

Report Title: The Effects of Inlet Turbulence and Rotor/Stator Interactions on the Aerodynamics and Heat Transfer of a Large-Scale Rotating Turbine Model

Volume Titles:	Volume I:	R86-956480-1	Final Report
	Volume II:	R86-956480-2	Heat Transfer Data Tabulation 15% Axial Spacing
	Volume III:	R86-956480-3	Heat Transfer Data Tabulation 65% Axial Spacing
	Volume IV:	R86-956480-4	Aerodynamic Data Tabulation

17. Key Words (Suggested by Author(s))	18. Distribution Statement
Heat transfer; Aerodynamics; Turbines; Rotor/stator; Turbulence; Unsteady flow; Airfoils	[redacted]

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of pages	22. Price*
Unclassified	Unclassified	241	A11

[redacted]